GENETIC PSYCHOLOGY MONOGRAPHS

Child Behavior, Animal Behavior, and Comparative Psychology

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PSYCHOLOGICAL BASES OF SELF-MUTILATION*

Translated from the Polish by William Thau, M.D.

CASIMIR DABROWSKI, M.D., PH.D.**

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**Polish Research Fellow of the Rockefeller Foundation at Harvard in 1934-35.

PREFACE

The fear and suffering which dog the footsteps of man are not always thrust upon him by the external conditions of his life. He himself may, to a certain extent, be the author of these disturbing experiences. Nervous and mental patients present in striking form such experiences and offer opportunity for their intensive study. Thus the conditions which underlie morbid fears have been partly disclosed, and we see how they are dependent upon a complicated play of forces in the depths of the personality. The dynamic elements which are revealed by the study of nervous patients are not peculiar to them. They are the constituents of human nature in general, but in the normal they are concealed by the conventional surface.

In the present monograph the author takes up the problem of pain or suffering in so far as it is self-imposed, due not to external factors but to subtle underlying forces which play an important rôle in the destiny of the individual. In psychiatric literature there are already many case reports in which the rôle of self-inflicted pain has been carefully studied. The need for punishment is a factor which is now freely drawn on for the explanation of many forms of nervous and mental disorders.

Dr. Dabrowski does not take up for intensive analysis individual cases where self-punishment, or automutilation, seems to play a rôle. His task is rather to give a general review of the field and to show the various settings in which this symptom may occur. His study covers a wide field. He makes a survey of the nervous disorders of children and of adults; he discusses men who have revealed themselves in literature, as well as those who have undergone an analysis in the consulting room.

To the general reader this monograph will be an interesting work of orientation, while the specialist will be particularly interested in the presentation of this topic by a Polish colleague.

C. Macfie Campbell.

I. INTRODUCTION

In this work we shall investigate the problem of mental and physical self-mutilation.[1] We do not presume, however, to settle this question; our aim is only to approach and to study at close range the symptoms of this form of behavior. Once familiarized with the symptoms in general by means of a sketchy description and differentiation, we shall try to define the physical, mental, and social causes of their development, and to state their connection with the psychophysical constitution and with certain pathological conditions. Finally, we shall make a few suggestions of a prophylactic, therapeutic, and educational nature.

The source of the majority of self-mutilating symptoms is the wish to suffer. The "necessity" for suffering, which at first glance may seem paradoxical, is deeply embedded in the human soul, and is more common than it appears to the normal mind. Certain religious orders based on the value of suffering, besides on other principles, have expanded throughout the whole world. There is no doubt but that there exists a more or less normal necessity for suffering following the feeling of guilt, or the possession of certain defects, suffering which is considered a redemption, or a way of moral perfection. We shall call attention chiefly to that seeking for suffering and those symptoms of self-mutilation which may be considered pathological. We shall use the following criteria, not claiming, however, very strict differentiation, in determining the pathological or non-pathological nature of the symptoms: (1) intensity of symptoms, i.e., force with which they appear; (2) duration of the symptoms; (3) their intensity in relation to the intensity of the factors by which they are caused. Besides considering the active infliction of pain, we shall call attention to the symptoms of passive submission to suffering, and the symptoms of the provocation of suffering. Moreover, we shall endeavor to throw light on the connection between the apparently opposite tendencies of self-mutilation and infliction of pain on others, a connection which in certain cases will prove to have a common source.

In this way the meaning of the term "self-mutilation" will become much broader than the meaning usually attributed to it. I mutilate *myself*; I *submit to self-tormenting*; I *torture others* – these often spring from the same source, from a necessity of experiencing suffering, a necessity manifesting and gratifying itself in various ways.

---

[1] This study concerns only auto-mutilation in psychoneurosis, psychopathy, and cases taken from observation of daily life considered normal.

In respect to the "phenomenon" of self-mutilation we distinguish between the inflicting of physical suffering and psychic self-torture. The "sphere" *of physical self-mutilation is accessible to* external observation; the psychic self-torture, above all, to introspection.

These are two sides of the same phenomenon, appearing in one or the other sphere depending on the mental make-up of the given individual, his age, education, or form of disorder. Most frequently the self-mutilation appears in a typical case under both forms, with predominance of one or the other. In the majority of cases, we are inclined to accept the identity of sources of self-mutilation in both spheres in the same individual. For instance, psychomotor hyperexcitability may be the cause of the initiation and development of nail-biting, wounding the nail-fold, scratching of the head; on the other hand, hyperexcitability resulting in tactless awkward behavior may lead to self-accusation and psychic self-mutilation. Penitent self-mutilation may appear in the form of self-flagellation, *in exposing oneself to physical discomfort; in the psychic sphere*, it may take the form of accepting morally humiliating obligations. Disorders of superficial sensitivity in more or less localized areas frequently cause pinching and scratching of these areas. Trouble which is of indistinct, changeable localization or of deep sensitivity may cause states of strong psychic tension, difficult to release. This difficulty increases the tension and makes it worse. If of long duration it may result in a suicidal tendency and may lead to suicide. Infantilism, underdevelopment of sexual organs, and homosexuality may be the basis of physical self-mutilation (scratching the nipples, mutilating the sex organs) as well as of self-hatred or self-humiliation. Strictly sexual masochism appears also frequently in both spheres. The cases cited present the similarity or identity of sources and mechanisms in both types of self-mutilation. There are, however, a number of cases in which the connection between these two spheres is not very clear.

2. *SELF-MUTILATION* IN STATES OF PSYCHOMOTOR HYPEREXCITABILITY

Localized irritations of different types cause the *desire to touch* the areas in which they arise. We notice this urge in ourselves—*touching an aching tooth* or a healing wound. This desire has to a certain extent a protective character. It is frequently hard to check this urge in a very intensive irritation. (In smallpox the hands *of the patient are bound* to prevent scratching the scabs.) In many cases the consciousness of disfiguration cannot avert the scratching and touching of the irritated areas. A common type of irritation, a *frequent starting-point of* self-mutilation, is pimples on the head, face, and back. We observed a few cases of children and adults whose trouble began with scratching the skin of their backs in the *area where the pimples were present. Another type of self-irritation* is illustrated by the case of 17-year-old *M* who systematically scratched his left elbow; it was proved on examination that this *spot, an area of four to six cm., was strongly anaesthetic, and that* this was the irritating agent. In another case, exhibiting nail-biting with mutilation of the nail-fold, it came out that the patient had partial thermo-anaesthesia and hypalgesia of these areas. Moreover, since childhood, he had shown marked endurance to physical pain, and had permitted extraction of teeth without flinching. We *also observed a few cases of nail-biting with bad tearing of the nail*-fold and of the skin on the inside of the fingers in individuals who had had chorea or symptoms of pseudo-athetosis in childhood. In others, we found hypersensibility of the skin to formalin or methyl alcohol, in and around the areas which were being scratched.

We frequently deal with local external self-mutilation corresponding in a greater or lesser degree to the spot, for instance, irritation of the right groin in inflamation of the appendix, scratching of the skin in the region of diseased joints, *and mutilation of the* abdominal walls by digging or scratching with the nails, in intestinal tuberculosis. In the case of 18-year-old *S* with intestinal tuberculosis, *we were concerned with the scratching by the patient of various* areas of the abdominal walls. In a state of great excitation he screamed, begging for a knife in order to cut through the abdominal *wall to reach the irritating spot.*

In case this irritation, which may be the starting-point of self-mutilation, is difficult or impossible to discover, we must be careful not to infer that such an underlying cause does not exist. The fact that this underlying cause frequently is discovered after the self-mutilation has begun points to the necessity for caution. We observed, for instance, a tendency to scratch the skin of the left groin and scrotum a few months before the appearance of a varicocele. In other cases, we found allergic eczema of the hands after some time had elapsed since the beginning of automutilation of this region.

In cases where the self-mutilating process cannot find a point of outlet, we very frequently find a variability in the localization of self-mutilation until the finding of a more adequate area, either because of the protracted cessation of the self-mutilating activities in any given area for purely accidental reasons or because of the existence of some more or less vague, little-known pathological agent (for instance, disorders of deep sensibility). Two cases of self-mutilation reported by Janet throw light on the mechanism in question.

The first case concerned a 10-year-old boy, whose hands and whole body were covered with wounds and scabs. The father of the boy seemed to be normal, the mother very nervous. The child was normal and healthy till his fifth year. At that time the patient had measles and whooping cough in succession, after which he began to scratch a few blisters which appeared on his forehead, especially before falling asleep and after awakening. He began gradually to scratch other blisters which appeared on his body and finally every spot on his body (blemishes, warts, black and blue spots).

Janet asked the question presenting itself first of all in such a case: "does the child feel pain?" It was brought out that the sensation was normal. In answer to the question concerning why he did this, the patient said, "I don't know, but I just have to do it" (42). Janet asks whether we are not dealing here with delight of experiencing pain (the question so intriguing to psychologists), and he answers that this behavior should be interpreted as the expression of a tendency which developed into an irrepressible habit in the child's mind, weakened by disease, and which could not be held back even by the coexistence of pain. This process is similar to smoking or drinking which many addicts cannot suppress despite the consciousness of the threatening danger.

We think Janet is right on many points. Nevertheless, the psychic process taking place in the former case is basically, different, despite many similarities, from the process occurring in the habitual smokers. In the latter case, the *realization of the habitual tendency* is not connected with pain or feeling of discomfort at the moment of gratification, but only with the consciousness of untoward results later on. Janet justly places the case of the 10-year-old boy in the class of tics, *obsessions, and delirium, which, in its initial* phase, may have been occasioned by weakness of the mental powers during the illness and perhaps to some extent by the toxic agents caused by the diseases.

Another case reported by the same author concerned the patient *Pb* who was continually pulling out the eyelashes from both lids. The family had a tendency toward obsessions and especially toward tics. *Pb* was a neurasthenic; any emotion provoked various gastro-intestinal disturbances which passed quickly. Beautiful eyelashes were an outstanding feature of most members of this family, and the girls of the family paid much attention to them. Janet assumes, it seems to us, rightly, that in *Pb,* inclined by nature to obsessions, the above factors and some accidental itching around the eyes could produce the realization of the tendency (42).

In neurotic conditions, especially in young people, we encounter an excess of such impulses, either in the form of hyperkinesis in general, or tics, with which may be combined disturbances of inhibition. In nervous individuals the sphere of impulsive and subconscious life is more strongly developed than in individuals of more resistant nervous constitution. Therefore the cortical control appears weaker and of shorter duration, or is out of proportion *to the exciting agent, in consequence* of which either an excessive inhibition (anxiety state) or a weakness of inhibition may appear at any given moment. The preoccupation with any emotion causes a diminution of the repression of impulses and the impulses increase (scratching the head, biting the nails, hyperkinesis while studying or reading). Meige and Feindel (55) in their work on tics present the mechanism in the following way: "Any prolonged concentration of the attention on a particular act or a particular idea presupposes a concomitant weakening of inhibitory power over other acts and ideas, which then become corrupt and inopportune, are incapable of further repression, and blossom into tics."

A disturbance of inhibition often appears in nervous individuals.

Therefore we encounter the phenomenon of the psychomotor release—an excessive activity of one group of tendencies and inhibition of others. In such a state, a purely accidental excitation may become the starting-point for the release of great tension. Frequently a state of strong tension becomes released by the beginning of self-mutilation in an accidentally localized area without other stimulation; then the self-mutilating activities systematize and transform themselves into compulsions (for example, biting and wounding of the lips). We observe the above symptoms in nervous individuals who are characterized by a certain lack of synthesis of psychophysiological activities. The emotional state deepens this lack of synthesis in accordance with Janet's (43) view that: "The emotion has a dissolving action on the mind and diminishes its synthesis." Neurotic individuals, who often have a great analytical capacity, fail more or less to synthesize, and are inclined to disintegration of behavior.

If we pass from higher to lower functions, the psychomotor activities of these individuals are also marked by a certain disintegration, a certain lack of coordination of the motor sphere with mental processes. Let us consider the mental work of a neurotic. While preoccupied with an emotionally colored problem or while performing an unpleasant duty, which also produces an emotional state, some psychomotor functions are not coordinated with mental processes but acquire a certain independence which may, among other symptoms, be revealed in nail-biting, laceration of the nail-fold, scratching of head and throat, pulling out the hair, biting the lips, etc., or touching nearby objects and semiautomatic writing of the same word over and over. It is known that overexcitable individuals with diminished repression, with a tendency to psychic disintegration (Schizoid types of Kretschmer; tetanoid types of Jaensch) have great difficulty in coordinating the main action of lower motor functions, which difficulty may, in coexistence with some irritating agent, appear as a process of self-mutilation. Moreover, the motor hyperexcitability, combining itself with disturbance of inhibition, causes the necessity for release which, in types described above, is often realized by finding on one's own body exciting areas which may serve as starting-points for self-mutilation. The finding of some bases for the unchecked impulses, and their fixation to an underlying process brings a psychic relief. This is one of the ways of releasing the accumulated psychic energy, as is its release in the form of onanism in anxiety states or of sexual relations in other emotional states. The mechanism described above is the basis for the development of many tics, to which group should be added many self-mutilating processes. This is proved by the frequent development of a particular self-mutilation following the intensification of certain tics; self-mutilation of fingers (wounding, biting) following onychophagia, or wounding the head and laceration of healing wounds growing out of a head-scratching tic.

These disturbances of inhibition and assumedly the lack of harmony in the coordination of the cortical centers and the autonomic nervous system can explain partly the appearance of self-mutilation in the hypnagogic state, on awakening, during a long stay in bed (convalescence), in emotional states, or while solving some problem. In children and adolescents the urge for activity is stronger than in adults. It is known that forced suppression of motoractivity because of disease, travel, or sleeplessness disorganizes the control of actions and facilitates the appearance of hyperkinesis as well as self-mutilation.

The faculty for bearing pain in self-mutilation must probably be interpreted as some physical or psychic hypälgesia. We have already called attention to the former; the latter should be explained as a state of psychic tension produced by mental, emotional, or impulsive obsession (compulsion), and finally by auto-suggestion causing a weakening of the pain sense during self-mutilation. The explanation of this state is analogous to the interpretation of the diminished feeling of pain during fighting or during a state of great nervousness.

In this section we have discussed, in the first place, the rôle of the exciting agents in the origin and the development of self-mutilating tendencies. The examples cited above show that these tendencies are the result, on one hand, of various somatic irritations, and, on the other hand, of psychic overexcitability and tendencies to obsession. Either of these may be a predisposing and a determining factor, depending on the type, strength, and duration of its action. A strong exciting agent may be simultaneously a predisposing and a determining factor of the self-mutilating process (itching, hyperesthesia), and it may be its exclusive cause. On the other hand, the exciting agent often has only a supplementary accidental effect, and the deciding agent may be the tendency toward obsession or psychomotor overexcitability in ordinarily introverted types.

3. SELF-MUTILATION IN ACUTE PSYCHONEUROTIC CONDITIONS

In overexcitable individuals showing a lack of mental equilibrium, a sudden unpleasant excitation often causes an emotional shock. This facile appearance of shock is combined with a tendency toward nervous outburst. In introverted, schizoid individuals, we often encounter self-mutilation as one of the most convenient means of liberating oneself from an unbearable tension. Self mutilation may act, in this condition, by means of the most easily borne physical pain or suicidal attempt, as a compensatory substitute for psychic pain or shame.

In individuals with little emotional flexibility, some great disappointment may undermine their faith and ideals, with consequent loss not only of the object of feeling but also of the faith in the value of even the strongest personal sentiments. This loss destroys previous mental harmony, sometimes to the point of self-vengeance, thus ending the unbearable pressure created by conditions of life. This mechanism is illustrated by the case of 18-year-old Miss *M*, a nervous idealist, very intelligent and highly sentimental, quick tempered and overexcitable. *M* showed in childhood a moderate tendency to hyperkinesis, nail-biting, scratching of the nail-fold, and a tendency to excessive enthusiasm and periodic depression. No hereditary stigmata were found. *M* fell in love with one of her acquaintances and decided to marry. Some time later, it turned out that the chosen one had deceived her. Within a few hours after learning this, she gave herself to the least acceptable and even physically repulsive of her suitors, after which she committed suicide. We deal here with an emotional shock caused by a sudden disappointment. The realization of one's own conflicting tendencies toward the object of one's emotions and toward one's ego produces as a reaction in young, impulsive, introverted girls a state of depression and doubt concerning the value of the deeper emotions, together with a focusing of vengeance on one's own self. An individual with a plastic mentality and the ability of adaptation to new conditions can bear such a disappointment, but types of lower plasticity, self-centered, introverted, are ordinarily unable to attain equilibrium. Depending on the faculty of decision or on the activity, they end by suicide or submit passively to life, finding release of the strong psychic tension in forms of self-mutilation most accessible to *passive and very sensitive types. Exposing oneself* to laughter and to physical *and* psychic *mistreatment* (for instance, self-accusation, humiliating oneself by lowering his social position, playing a part of the one "whom they slap in the face") are means of self-vengeance for mistakes, in a form of protest characteristic for such personalities. A strong emotional shock to such individuals destroys their adaptation to the realities of life and very frequently leads to one of two possible ways of meeting these situations: suicide or annihilation of pain by self-mutilation.

We also encountered self-mutilation as a form of compensation for moral pain and shame in a 17-year-old girl of schizothymic constitution who attempted suicide after disappointment in love, and began systematically to wound the lower abdominal regions when her suicide was frustrated. She did not allow the wounds to heal and continued this self-mutilation for several months until she fell in love, this time successfully, with another man. We deal here with the necessity for the liberation of accumulated psychic tensions in the easiest form for the given individual. The release is not entirely automatic, but to some extent conscious. We have also observed cases of self-mutilation as one of the means of getting rid of an unbearable state of psychic tension caused by great vasomotor *effort. The anxious state, feeling of strangeness of one's body* (extremities), and feeling of dying away were causally related to pinching, in order to bring back the state of activity, to increase by this means its weakened functions. A similar mechanism was found to exist in one of Janet's (44) young patients who, letting drops of boiling water fall on his palm, said, "Only this can bring me back the feeling of myself." We have also noticed a similar mechanism in individuals with symptoms of acute depression. In these cases it was, as we emphasized above, for the anxious, introverted, or passive types, the easiest way of release from an unpleasant state of psychic overexcitability.

The form of release of the psychomotor tension in states of acute anxiety may be very unclear to the individual himself and for this reason after the fact of self-mutilation he seeks to explain and justify his behavior. This explanation is very often not based on the real facts. Such a mechanism was probably at work in the case of the 12-year-old *S* who exhibited a systematic pulling out of the eyebrows. *S* was of a passive type, in poor contact with his surroundings, of inferior ability, and suffered a feeling of inferiority. The patient's excitability, vomiting of unknown origin, fatigue, drowsiness with difficulty in falling asleep, and feeling of dying away may arouse the question of a disorder of visceral sensitivity. Passivity and slow mental activity could, under aggression of schoolmates, constant noise and unrest at home, and weariness (he went both to common and Hebrew schools), give rise to anxiety over the school situation with tics and persecutory ideas. We assume that pulling out of the eyebrows "in order not to be recognized," as the patient said, by hostile schoolmates was an accidentally found outlet for the necessary release of the tension of the above-mentioned state in which the patient's personality was the predisposing factor and the environment the determining one.

We also find self-mutilation as a symptom of an acute state of anxiety in the case of 13-year-old *L* who exhibited biting of the nails and tongue in a marked degree. *L* was uneasy, showed hypermotility, was rather physically underdeveloped and undernourished. There was a slight left ptosis, hypertrophy of the lymphatic glands, moderate dermographism, and increased tendon reflexes. Otherwise the neurological and medical examination was negative. In the hospital, he screamed frequently, bit his hands, did not want to eat, was obstinately repeating that he wanted to go home, that he wanted to die and would die if he were not sent home. He said he hated school because "the teachers beat the children." In school he felt badly for being the oldest and tallest in his class, having had to repeat one year because of failure in French. He sometimes dreamed of the children being beaten in the school. Asked why he bit his hand, he said that by doing so he wounded his classmates. He wanted to study at home "all day and all night," but he did not want to go to school. He said that if he were forced to go to school he would go to the cellar and kill himself with a knife, and that "there are lots of penknives at home." During his stay in the hospital he attempted suicide by asphyxia, then broke the window and tried to kill himself with the pieces of glass.

No hereditary stigma was found, and at birth the delivery by forceps was without ill effect to the patient. He did not feel well in school and was several times transferred from one school to another. Once, while playing, he was unintentionally the cause of a fractured skull of a schoolmate whom he liked. He took this *much to heart and refused* to go to school. He had fever without meningeal symptoms for a few days, after which he began to bite his hands and to press his eyes.

The inferiority complex combined with nervousness, anxiety, and uneasiness *among strangers were here the predisposing factors.* The emotional shock caused by the accident in school gave rise to the acute state of nervous anxiety. The mechanism of the self-mutilating process (scratching and biting of the hands, screaming, and suicidal attempts) may be interpreted, *on the one hand,* as a characteristic form of the anxious passive individual's release of the tension and, on the other hand, as a way of avoiding unpleasant school experiences. The application of self-mutilation was based on observations that it was a successful means of getting the desired results.

On the basis of neuropathy there arise and develop very often unmotivated phobias which result in the manifestation of absurd ideas. This is illustrated by the case of 18-year-old *S* who, prompted by the fear of future military service, begged the physician to cut off his hand; when the latter refused, he went with the same request to a chiropractor who extracted 12 healthy teeth at one sitting. To this class belong the self-mutilations of compensation-neurotics who sometimes mutilate themselves *badly* in order *to obtain* compensation despite the possibility of finding adequate work. It may be assumed that the mechanism of these processes is similar to the mechanism of compulsions. The mental restlessness, increased by autosuggestion, *takes the road indicated by the goal and in this* way the accumulated tension is liberated. The necessity for obtaining compensation may be explained here by the state of the patient's increasing feelings of uncertainty and of the need of care, the *source of which lies in past* acute states of anxiety (experiences on the battle front or industrial accidents). The weakening reality feeling, together with the state of anxiety, facilitates the development of obsessions.

4. SELF-MUTILATION IN STATES OF NEUROPATHIC DRAMATIZATION AND HYSTERIA

In children and adolescents we often deal with a tendency to dramatization in order to satisfy desires "to get one's point." This tendency is based, on the one hand, on mental overexcitability and, on the other hand, a lack of an even and rational educational influence by the parents. Contradictions in forbidding and ordering, revocation of given commands, and excessive and unreasonable anxiety concerning the child cause a pathological transformation of the egocentric spirit in the child which directs it toward tyranny in regard to the parents. The observation of weak points of the parents' behavior is the basis for the building up by the child of an entire group of methods for attaining his desires. We are using the term "dramatization" for the description of these tendencies as a group and the term "neuropathic dramatization" in cases showing neuropathic peculiarities.

If the child, under these conditions, realizes that the source of its mother's greatest concern and unrest is the child's health, looks, or contentment, he will, in order to reach his goal, take advantage of his mother's weakness by simulated or by actual damage to his health and by exposing himself to some discomfort and unpleasantness. The case of the 12-year-old *M*, an only child, a tyrant to his mother, who in order to provoke her to worry about himself got her powder box and powdered and painted his eyes so as to "look sick," illustrates this point. Another case concerned a child of nine years, who was nervous, suggestible, and capricious. Irrational rearing, conflicting orders, and denials caused a strong development of stubbornness in this child, who, being well aware of his mother's weakness, namely her great sensitiveness to the opinions of others, used to throw himself on the street during a walk, to scream or to feign convulsions in order to terrorize his mother for refusing his requests and to assure himself of future indulgence. While walking with his mother at a summer resort, in the absence of onlookers, he applied his method in the changed surroundings. He would run ahead several feet and throw himself down in order to give the mother a chance to observe him longer. As she approached him (on the physician's advice, she did not hurry immediately to help him) the attack would suddenly cease and the boy would get up and again run ahead of the mother to find a suitable place for the repetition of his act. A similar but more refined mechanism is illustrated by the eight-year-old *W*, a son of cultured but neuropathic parents and an only child. The very exclusive mutual affection with the mother, her excessive fear for the child's health, and the lack of proper understanding of the necessity for the child's social development (relationship with schoolmates, common sports, etc.) were the bases of the development of the child's pathological egocentrism and dramatization. The boy forced his mother to come for him (the school in a small town is only about 200 yards away). When the mother did not come, he used to throw himself on the ground and bite his hands or scratch his face. When the father punished him by standing him in a corner, the lad obeyed, but did not leave the corner later, after the time of punishment had elapsed. He stood there for over an hour and thereby forced the father to apologize and give up punishment. Watching his parents' worried looks through the keyhole and windows intensified his state of pathological egocentrism.

Sometimes the neuropathic dramatization may take a dangerous course, as in the case of the 14-year-old *M*, who, when his desires were not acceded to, provoked nose bleeding. Once, the loss of blood reached about one pint and caused fainting. The underlying causes were the boy's nervousness and faulty upbringing. The determining factor was the observation of the impressions which a small accidental nose bleeding made on his parents.

We have emphasized here the fundamental importance of faulty methods of upbringing in the origin and development of pathological dramatization. It is not always the principal factor—sometimes it is only the determining one. This may be illustrated by the case of 14-year-old *A*, who showed overexcitability, suggestibility, hysteric stigmata, and attacks. Despite these symptoms, *A* was cooperative, active, a good pupil and companion. *A* resented very strongly that she was left at home during vacation when her parents went to various health resorts with her older, sickly sister. Observation of the effects on her parents of her fainting, which happened accidentally when she gulped a drink of strong soda water, resulted in stimulation of fainting spells. After a pseudo-attack, *A* usually ordered the maid not to tell the parents, being sure that she would do just the contrary. We are dealing here with neuropathic dramatization of a hysterical personality. The high level of her acting was based on her innate tendencies to dramatization. In boarding-schools, we have observed many cases of self-mutilation by tickling the palate to provoke vomiting, letting blood from the nose or exposure to cold. The motives behind these cases were the desire to play truant from school or to shirk work of some sort, attracting attention, and provoking affection. With minor exceptions these cases concerned neuropathic individuals, who expressed in a way most characteristic of their psychological types (introverted, passive types) this need of arousing interest in themselves, or of freeing themselves from unpleasant situations.

In young people of introverted, anxious, and overexcitable natures, bound by affection or feeling of love, we find characteristic tendencies of self-mutilation to "spite" the beloved person. This is a punishment of the dear one by causing harm to oneself, and is quite characteristic of women or of men with some feminine psychic traits. This mechanism is illustrated by the case of *M*, sick with pneumonia, who in the course of a heated discussion with her fiancé declared that, on any further argument from him, she would go out barefooted in the snow. In reply to this the fiancé remarked that one more unpleasant word from her would make him stab his hand with his penknife. Self-mutilation is for such individuals the simplest means for release of the tension and also for a more or less conscious attainment of certain ends.

Posing, eccentricity, and tendencies to dramatization in such a personality are illustrated in a passage from the diary of *L*:

> The conditions of my life were not as I may have desired; when I experienced hardship caused by relatives whom I loved and by whom I wanted to be loved, I took it out on myself. This occurred especially when I endured even a just punishment by my mother, who loved us dearly, but who was very strict. I always punished my mother with my air of misery. I refused food, feigning illness; I complained very much and pitied myself at such moments. In quarrels with my husband, when I felt that I was not quite in the right, when every sharp word on his part irritated me and brought me to a helpless anger, I would decide to revenge myself in a similar fashion and would cause myself to endure pain, hunger, and

> cold. I once ran out of the house in a light summer blouse, in order to catch cold and "to die," but the first chill made me wish strongly that my husband would come out and take me back speedily before I caught cold. I enjoyed speaking of death, imagining myself on the hearse and picturing him weeping and whispering tender words over my dead body . . . . .

Self-mutilation in connection with definite hysterical dramatization is illustrated by the case of 17-year-old *S* who had been admitted three times to a psychopathic hospital for observation. During her first stay at the hospital, she exhibited symptoms of amnesia, complaining of not knowing her own name. During her second hospital residence she repeatedly subjected herself to trauma, refusing to eat, making tube-feedings necessary, and then battling the nurses so violently that it required force to handle her. Orientation and *memory were good except for continued protestation of amnesia for* the events preceding her first admission. She tended to project on to the physician. Possibly stimulated by contact with a schizophrenic patient, she developed pseudo-hallucinations. She showed a tendency to exaggeration and dramatization. She called constantly for the doctor and nurses and was capricious. She repeatedly tore the dressings from a surgical wound, contaminating it. She did not want to go home and threatened to do self-injury if sent home. A constant tendency to flirtation and confabulation was observed. (She made repeated suicidal attempts without justified cause and frequently ruminated on suicide. She once stated that she wanted to commit suicide for fear of pregnancy.) Physicially she was well-developed and of good carriage, but her gestures and movements were exaggerated. Hair was normally distributed, with little hair on the legs. The right pupil was somewhat wider than the left. Menses were normal. Neurological and medical examinations were negative. Intelligence was higher than average. Both parents were considered "unstable" and very sensitive, suggesting a possible hereditary factor. At the age of two the patient had convulsions, together with an ear abscess. Until the age of seven she was brought up by strangers. Her 15-year-old brother was drowned when she was seven. At home, she frequently showed outbursts of anger and jealousy in relation to one of her younger sisters for whom the father had a strong affection, yielding to all her desires. She got along badly in school, was irritable, and liked to play truant. She once purposely wounded her hand in order to obtain a physician's certificate of sickness to excuse herself from school. She showed a tendency towards running away and vagrancy. She repeatedly presented herself at various hospitals with the symptoms of an acute abdomen, operation in some instances was frustrated by her lack of funds, and in other, by the surgeons' refusal to operate. She succeeded in achieving two laparotomies: on one occasion a chronic appendix was removed, and on the last, a cyst of Morgagni was removed and the uterus was suspended. She attempted suicide on several occasions, and it is of interest that the attempts followed immediately upon a frustration in bringing on an operative attack. On her last admission, the patient told a story of having taken morphine at home (supplied by a friend who was a nurse) for the appeasement of pain and dissatisfaction. Under a thin disguise of anxiety she shows marked satisfaction in the picture of herself as a morphine addict, as a more colorful personality. She shopped from one clinic to another, being examined and receiving different diagnoses. After a quarrel at home she refused to leave her bed. Her father brought her food, thereby giving her great pleasure. During a friend's visit she suddenly jumped out of a window without any plausible reason. We see here, as the basis for self-mutilation, a pathological need of arousing the interest of others in herself, typical of hysteria, and a state of unrest probably in connection with disturbances of deep sensibility. These factors, together with a degree of suggestibility, predisposed the patient to self-mutilation.

Disorders of deep sensibility, characterized by changeable and indistinct localization, can be the basis of the changeable localization of self-mutilation. Unrest combined with these disorders, the growing tension, difficulties in finding a way of release, for instance, lack of a new idea for self-mutilation, and difficulties in arousing the interest of others in oneself apparently caused suicidal attempts as a means of freeing herself from the tension.[2] The use of self-mutilation for the realization of one's desires and for the attainment of desired ends depends on the ease of utilization of the accessible means. In hysterical individuals of a normal intelligence level, observation of the outcome of their tendencies to self-mutilation, of a probably non-purposive nature, results in the repeated conscious use of the same mechanism to reach a desired end.

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[2] This mechanism corresponds to the mechanisms observed by Janet, Ribot, and others, according to whom co-annesthetic disorders sometimes cause an unbearable self-consciousness with great tension. The patient's ignorance of the cause and the lack of known symptoms result in states of excitement more frequently than do known, common factors.

5. SELF-MUTILATION IN RELATION TO A FEELING OF INFERIORITY, GUILT, OR THE NEED TO BE IN THE SPOTLIGHT

Nervous individuals who are approaching maturity may sometimes show self-mutilation in connection with a feeling of inferiority and with transitory periodic depressions. The state of depression and feeling of inferiority very often gives place to a state of periodic euphoria, self-praise, or exaggerated feeling of one's usefulness. In youths dissatisfied with themselves, we observe, in similar states of depression, emphasis of their worst traits and a feeling of a lack of attractiveness, with a craving for affection and sympathy. Nervous youths, especially during the period of adolescence, begin to day dream of their sickness and death.

According to Adler, day-dreaming about one's own death, sickness, humiliations, and sometimes the realization of these dreams develops itself on the basis of a feeling of inferiority, and is a compensation for this feeling, in order to arouse pain and pity in the parents so as to be kept deeply in mind by them (2). No doubt this is a common, but not all-explanatory mechanism. Mental overexcitability, anxiety, inability to adapt oneself to new surroundings, and especially poor sociability and difficulty in one's relationship with others may be the bases of self-criticism and self-reproach. Individuals with such peculiarities reproach themselves for their inadequate behavior in play and in work; they discover a series of faults in their conduct and in adverse and grave situations: they always foresee the worst possibilities and have no faith in themselves. Some real inadequacy of behavior in a given situation, together with the feeling of inferiority and the need to assert oneself, is the cause of continuous reproaches as well as of overexcitability, depression, and "eating oneself up" with worry.

In such individuals we meet, on the one hand, with anxiety, embarrassment in new surroundings, and observation of one's own behavior with a consequent sense of uneasiness and awkwardness of movement; on the other hand, we meet with an extremely subtle conscience, with the tendency to analyze oneself, with a sense of one's peculiarity, and a feeling of distinctiveness. Introverted types, retiring individuals, natural only in a familiar group, are usually marked by a greater subtleness of thought and feeling, a tendency to contemplation, and to finding interests in uncommon problems. These are some of the factors causing self-consciousness and the discovery of many traits of one's own superiority.

Stepping down to a lower level in fellowship and social life, and realizing that this group is represented chiefly by individuals of low moral and social values, causes a feeling of inferiority and sensitiveness, and a tendency to *explosiveness. This state often leads one* to inappropriate actions and to self-derision in consequence of which there arises self-reproach, a feeling of shame, and self-mutilation. Besides the part played by the child's psychophysical constitution, a great part in the initiation and development of the above-mentioned emotional states is played by inadequate methods in educating the child. The infliction of inappropriate punishments (beating), lack or irrationality of the educational system and fear of the teacher, results in excitability, inadequacy of self-control, anxiety, and consequently self-mutilation. An abandoned, disliked, and neglected child, who is a poor mixer and not aggressive, releases this increasing, and at the same time repressed, tension by self-mutilation. This is taking vengeance on society by causing others to suffer his self-mutilation. Self-mutilation of "the injured and humiliated" (Dostoyefsky) arises under such circumstances.

We shall pass now to a large chapter of self-mutilation in connection with the feeling of guilt and the need for purification by punishment. In emotionally overexcitable, inadequately reacting individuals, harm to someone often results from excessive sensitiveness, lack of control, misunderstood reproaches, or misjudged relationships. Anxiety, and a difficulty in making decisions, does not allow him to admit the guilt and to explain the misunderstanding. Therefore, self-mutilation (and atonement for sins) becomes the easiest way of purification to free oneself from the strong mental tension.

Children and adolescents often engage in self-pricking with pins, biting of the fingers and lips to bleeding, kneeling on peas, sleeping on a hard bed. Weak, anxious, and sensitive children show excessive affection for the mother. We find that during the preadolescent period such children rapidly develop an attitude of great overconfidence, as a form of revolt and protest against the former dependance and submission. Such youths become, subconsciously to a great extent, annoying and even cruel to their parents. (This is especially so in the relationship between these sons and their mothers.) The realization, after regaining their equilibrium, that they have done some harm to the parent, especially when the death of the parent makes reconciliation impossible, produces a feeling of guilt and a need for punishment which is frequently effected in the form of self-mutilation (living through past experiences, meditation, self-accusation, and physical self-mutilation). Under such circumstances, a suicidal tendency or attempt at suicide may arise, as an expression of the impossibility of gratification of the need.

At the bottom of the feeling of guilt, need of punishment, or self-mutilation, we frequently find disorders in the development of sex-interest and instincts. Inadequate development of the sex life in children and adolescents may result from innate factors and also from the harmful influence of the surroundings (watching the scenes of parents' sexual life, and the suppression of experiences connected with this; the teaching that all sex-interest is sinful; the punishment for masturbation; improper influence of servants; disappointment in the first love affair or sexual experience). If introverted, anxious, neurasthenic infantile types of personality, inclined to exaggerated self-analysis and lacking proper guidance, are exposed to such situations, there appears a feeling of guilt and a conflict between sexual tendencies and this guilt associated with the need for penitence. Self-mutilation is often a result of such a conflict.

Faulty educational methods as the basic factor in the abnormal development of a child's sexual instincts is illustrated by the case of 13-year-old *L*, the son of a woman who was fond of gay social life and flirtations. *L* showed from childhood self-mutilating tendencies; from his twelfth year he whipped himself. "Fight with flesh" contained within it "fight with woman." *L* avoided the society of women and, despite the reproaches at home which made him suffer humiliation, he could not help turning away when meeting women, even those who were the closest friends of the family. The influence of his mother, sexually overexcitable, flirtatious, and continually seeking amusement, was one of the causal factors. The mother, not knowing the workings of her son's mind, ignored his becoming aware of her habits and did not notice the arousal of his pathological affection for herself (*jealousy, need of fondling*). *She minimized* the importance of her son's nervous outbursts, when, beautifully dressed, she was about to go to a dance. The feeling of sexual desire towards his mother, and its association with the tendency toward masturbation, were the bases of the development of a feeling of guilt and need for punishment, together with a fear of women.

Among neurasthenics, self-accusation and self-mutilation may be the result of a strong mental tension and depression combined with a feeling of impotency and inferiority. This mechanism is illustrated by the case of 18-year-old *S* who was a pleasant, cooperative boy *of high intelligence. Once he slashed both his wrists with a* penknife; several times, in states of excitement, he lifted heavy stones. In these instances he wanted to punish himself for masturbation and to free himself from the unpleasant state of mental overexcitability. A feeling of inferiority, combined with masturbation, shyness in relations with girls (when in their company, the thought persisted that he would not be able to have relations with them), together with acne of the face, played a part in the development of self-mutilating and sucidal tendencies. The following points throw light on the source of this condition. In his family, *his mother was fonder of his better-looking brother*, of whom the patient was jealous. He was not brought up to be an active member of the community; he took no part in plays, amusements, or school activities. He was highly emotional, which he probably inherited from his parents. This condition was intensified by masturbation which the patient considered from the beginning sinful and punishable (he grew up among people holding such convictions). These factors produced states of strong mental tension of an anxious character which were released by self-mutilation.

The rôle of sexual disorders as the basis for self-mutilation is again illustrated by the case *of 17-year-old M*, mentally of a dysplastic type (Kretschmer). *M* was extremely pious and inclined to convert her less devout friends. At her request, her tutors gave her permission to form a religious circle. She was troubled when she failed to influence her chums; she then stopped eating meat. At night, when she noticed that everybody was asleep, she would take her poorly stuffed mattress to the classroom, put it on two benches and spend the night lying flat on her back. She repeatedly put wooden boards on her mattress and slept on them. The patient explained this behavior by saying that she had to prepare herself to take the veil. On persuasion, she stopped this mode of sleeping but began to pour salt into her tea and coffee. She often maintained that she understood personalities and that she could size them up at first sight. She was jealous when greater affection was shown to her younger brothers and sisters. She showed timidity in conversation with the opposite sex and considered dancing a crime. She showed unhealthy sexual tendencies toward girls and she became irritable and fretful when they moved away from her. She considered books on normal love-relations sinful. In preparing her work in the required course in literature, she at first avoided the amorous passages, but, when her curiosity was aroused, she became overexcited (very large pupils, blushing, trembling hands, uneasy movements, repeated unnatural wild laughter). After a certain time, she experienced pangs of conscience and an aversion to life; she considered herself a criminal, and the authors of the books foolish and dishonest. We deal here with a hysterical person with homosexual tendencies, sexual overexcitability, and a feeling of inferiority, and probably mental deficiency.

In the case of *L* we found a relatively weaker neuropathic basis. *L* entered the convent at the age of seven and, under influence of the convent atmosphere and religious reading, began to imitate saints by whipping herself. She locked herself in the bathroom before going to bed, and having entirely undressed herself whipped herself with a cord till she bled. She did it with the conviction that blood-letting had a purifying power. *L* whipped herself for several year's until, on growing older, she realized that using self-mutilation brought on a state of sexual excitement and gratification. She admitted that the cause of her self-mutilation was "hunger for affection." (*L* was brought up away from her parents; as she states, she never was loved.) *L* repeatedly used self-mutilation to attract attention. It must be assumed that the need for arousing others' interest in her was also caused by the lack of parental love and care.

Twenty-year-old *S* of asthenic, introverted type was excited by the stories of the penitence of saints and felt the need for suffering as a purgative to escape hell *and to merit redemption. To that end,* without betraying herself, she *began self-mutilation by placing* sharp and hard objects in her bed at night and by binding herself tightly with cords. The more she felt the pressure, the greater was her joy. In the passage from her autobiography concerning this period, she writes:

> This was not enough to calm me; if my reason and the influence of the surroundings had not prevented me, I would have *lain on red-hot coals, I would have submitted myself to slashing* with a sharp knife and to all kinds of tortures I could imagine. It seemed to me that if my wishes came true I would have felt happy. I remained in such an emotional state for several nights in succession, and felt no need of sleep, yet in the day time I felt well.

After several years *S* stopped these practices and gave as a reason *for stopping that she had a distinct, strong, and tempting* sexual experience during their performance. "If not for this and the immediate surroundings, I should have tortured myself, no doubt, in a *different way, for I found in it* pleasure and satisfaction."

We have mentioned several times the rôle played by a state of anxiety in the arousal of the feeling of guilt and the need of punishment. Improper influence of the surroundings may provoke the appearance *of groundless feelings of sin in suggestible children. Eight-year-old M pricked her hands and heels with a hat-pin.* She *beat* her chest with all her strength and when asked by her older chums why she did it, she answered: "I must do so, because I often tell lies, I am afraid of Hell, and my mother says, 'one can repent in this world'." This child invented for herself various punishments as a means of purification for her imaginary sins. As early as her fifteenth year she started *purifying herself by starvation.* From the etiological standpoint the neuropathic heredity and the influence of the nervous mother, a religious fanatic, may have played a great part.

The last-described cases belong to ascetic self-mutilation, and they were put in this chapter because of the characteristic rôle of inferiority, guilt, and need of purgation, in the development of their self-mutilating tendencies, *and, on the other hand, because of the* lack of definitely systematized self-mutilation.

In individuals without physical, mental, or social ground for the formation of inferiority feelings, but of introverted and passive makeup, we frequently observed self-mutilation as an expression of the need of distinguishing themselves, by showing unusual endurance in the most convenient means for obtaining the acclaim of the group. In a very few cases of this kind Adler's theory may be accepted. Self-mutilation rarely resulted here from excessive inquisitiveness into their inner experiences by introverted, suggestible individuals of unbalanced tendencies. Sometimes this need developed from an accidental observation of their dull sensitiveness to pain or painful experiences. Interest in such experiences sometimes betrayed a masochistic character. In other cases the cause was an interest in the endurance of pain by certain highly regarded characters of history and literature.

We were acquainted with the cases of several young people who observed themselves while inflicting physical pain on themselves, measuring how deeply they could insert a pin into their hands, and noticing how their faces would change as the pain increased. These individuals trained themselves to tolerate pain without showing the slightest change in expression. *S*, 18 years old, especially requested while undergoing a necessary operation that a nail be torn off his finger without anaesthetics, wanting to probe the limit of his endurance. The statement of physicians, during operations, or of dentists, during drilling and extraction of the teeth, that they are exceptionally patient in enduring pain gave these patients great pleasure.

A similar mechanism is shown in certain childrens' games; the so-called endurance games, based on competition on "who can stand the greater number of blows with the rod on the soles of the feet," or the determination of who will be able to kneel longer on peas, to stand longer on one foot, or to keep quiet longer in the classroom. Many competitors take part in these games; the initiative, however, usually comes from the types described above. A characteristic form of endurance game, without partners, combined with the need for perfection and the intolerance of mental suffering, is illustrated by the case of eight-year-old *F*, who, not being able to bear the sight of blood, and suffering from phobias and a state of excitation when watching the slaughter of animals, purposely watched the servant slaughter hens as a way to fortify herself and to distinguish herself in this field.

6. SELF-MUTILATION IN CONDITIONS OF EMOTIONAL HYPEREXCITABILITY AND LACK OF MENTAL BALANCE (INSTABILITY)

Many investigators of the emotional life of youth speak of individual or group excursions to cemetery chapels or morgues to observe the appearance of the dead, the expression of the face, the characteristic posture of the body and its morbidness. This phenomenon is fairly frequent, and we must consider it as a sign of interest in death because of its mystery and terror. In certain cases, however, the desire to look at the dead body is an urge to experience, to intensify, and to confirm with their senses the imaginations and oppressive feelings experienced in connection with the problem of their own deaths, their own destruction. To our questioning as to what drove them to such observations we were frequently told that they felt drawn to it in spite of moral pain and repulsion. Particular experiences related by some of them indicate that they like to visualize themselves in place of the corpse, and in imagination to vary the expression of the face, to change the position of the body, and to modify the surroundings as they imagine it would be in the case of their own death. Analysis of other aspects of the mental make-up of this type of individual very frequently throws light on these tendencies. Oftentimes, more or less typical nervous symptoms, neurasthenia or psychasthenia, were elicited; in many cases a feeling of inferiority was found. In the latter case, imagining oneself an object of interest, and visualizing the pity of parents and relatives may be one form of compensation of imagined or real inferiority. The psychasthenic or neurasthenic most frequently keeps himself outside of society. Unabsorbed by the changes and continuous currents of life, he has a chance for the observation of his deeper, less apparent symptoms. The emotional life unstirred by the outside world is turned inward. These factors make it easier to be occupied with such problems as that of death or the value of life. A normal person on the death of even an intimate friend or relative usually suffers merely a slight shock which does not leave deeper impressions. Not so with psychasthenics or neurasthenics, who are inclined to exaggerated self-analysis, phobias, and depression, "striving for ideals and homesick for eternity." To many of them the struggle with the fear of death is a most important problem, from which result the attempts to accustom themselves to scenes of death and reflections on suicide. These experiences, despite the accompanying sadness and fear, are colored sometimes with the pleasant feeling resembling that which we experience when touching a painful spot. Obsessive thoughts of death as the end of all endeavors tinge the mood with sadness. Characteristic of these anxious psychasthenics is the inability to adapt themselves to the present mood of the environment, unless it be a sad one. These people, in a moment of joy, think of its rapid end and of oncoming unpleasantness. Constant rumination on restlessness, fear, and sadness obscures their happiness. We observed an individual with symptoms of self-mutilation who, in the most pleasant moments in his family circle or among friends, repeated in his thoughts: "Oh, if I could die, if I could only not exist." A reaction similar to this is a particular fondness for and tendency to deal with subjects full of unhappiness, sadness, and horror in life, literature, and painting. The outcome of action in literary works in a way which conflicts with the instinct of self-preservation, death of what should live, survival of what should perish, and the triumph of evil and pain over joy produces in such individuals exaggerated emotions which can hardly be explained as those of artistic satisfaction alone. A young and very cultured man stated, for instance, that of all the works of Puvis de Chavannes he liked best the picture entitled "Young Girls and Death," which presents six young girls dancing in the woods with flowers in their arms unaware of Death lurking among the flowers. Such tendencies frequently point to the existence of conflict within the ego. The feeling of sadness and pain, and the reflection on and increase of this feeling, may introduce an element of pleasure. The fact that this condition is unpleasant but inseparably associated with the mental structure of the subject, leads to the sublimation of sadness, pain, and morbidity into symbolic forms by which he measures the phenomena of the outside world. On the other hand, this is a sort of refuge from the outside world into his inner world which is emphasized and given a certain quality of sanctity and inaccessibility. Many individuals inclined to self-mutilation find satisfaction in the realization of their own solitude, injuries, sadness, and misunderstanding. "I prefer to be a dissatisfied Socrates than a satisfied animal," is for them a characteristic expression of their inner feeling. The very solitude of the observer is frequently associated in nervous individuals with the ability to evaluate more easily the pretexts and falseness of the social milieu. Discovering "human beasts in the shape of man" (Zeromski) becomes a passion in many such people who look for the worst side of life.

In real life and in the creations of individuals inclined to self-mutilation we find many destructive tendencies. The created characters reveal destructive tendencies which destroy them mentally and physically. It is obvious that the solution of a problem by healthy reasoning should not destroy the individuals concerned. And yet we see that Judym (from "The Homeless" by Zeromski), a strong man, profoundly emotional, and a realist, condemns himself to destruction by casting aside Joas' deep love for him, which he supposed would have hindered him in fulfilling his obligations to society. Yet, putting ourselves into Joas' and Judym's position, we see precisely that their union would have increased the value of their work for others, and would have given Judym the necessary strength for the fulfillment of difficult tasks and also eliminated many inner conflicts. Joas' whole personality was exactly the converse of Judym's chimera; and the way in which Judym solves his internal conflicts forms in us the conviction that he will end by suicide or by breaking down mentally because of inner suffering, that he will not fulfill the accepted obligations to humanity, and that he will destroy Joas' life. One feels that the author is unable to remove some destroying force which exists everywhere, which inflicts the least expected and most painful blows because it is directed against youth, beauty, and the most cherished sentiments. These characters were all created by a man who possessed an appreciation of beauty, of individuality, and of heroism, who, in moments of the greatest blossoming of these qualities in his heroes, destroys them by blind accidental forces and foolishly insignificant conflicts existing in their imaginations. This is precisely "the laceration of his own wounds" but it is also evidence of his desires to destroy, as a symptom of his philosophy that "all arises from dust and to dust shall return." Such writers as Dostoyefsky and Zeromski possess, on the one hand, a strongly developed sense of reality, recognizing the "human beast" in general and in particular, and, on the other hand, a worship of upright and long-suffering people who suffer only because of their spiritual values. They bear the painful knowledge that wrong is never rectified or revenged, that the evil of cosmic character frequently infects innocent and beautiful souls (Eva Pobratimska), and that in greatness lies the secret germ of lowness. This knowledge, together with the conviction that in a young beauty lies the bud of ugliness, and that in life lies the seed of death strengthening its power in each unit of life with every passing moment, produces a state of continuous restlessness, torment, and pessimism. The greater the ability to see the unpleasant side of life and, at the same time, to escape beyond it and beyond the realm of death, to disregard all values, the greater will be the restlessness and self-mutilation. The mind, not allowing itself to be deluded, and unable to adapt itself to life, will logically lead to self-mutilation, to suicide, and to more or less conscious hatred of its own disintegration. Since, however, this spirit is a real component of the mind of the individual, and since it is felt as one's own and therefore an integral part of the personality, it frequently becomes pleasurably colored. Thus a certain unpleasant state can be explained to some extent as agreeable and also as disagreeable. This mental splitting and aversion to life is opposed by the instinct of self-preservation and the sense of reality, which struggles with these tendencies in order to preserve the ego. The more pronounced this disintegration, the stronger is the urge for destruction and the wish to die. Schopenhauer's life was characterized by conflict between the instinct of self-preservation and the negation of the wish to live. The ability to notice the "human beast" in all its complexity and realism, along with sympathy for the down-trodden individual and a deep subtleness of feeling, characterizes Dostoyefsky, Tolstoy, and Zeromski. The need for spirituality, on the one hand, and the tendency toward sensuality, on the other hand, are the basic characteristics of Weininger. All these authors showed self-mutilating tendencies to a high degree, and some of them displayed certain hetero-mutilating tendencies as well.

Berent (7) calls attention to the conflicts of Nietzche's mentality in the following way:

> Actual conflict in Nietzsche is a discord of spirit, whose roots reach deep into human nature, an eternal quarrel of fiery emotions with coolness of thoughts, of dreaming, and of lively

> imagination with severe calm of strict logic; the torment of the poet who considers himself insane, a phantom, an exile from the realm of truth with intuitive feeling of the deeper secrets of life, paralyzed by a distrust of feelings and intuitions.

Nietzsche's work is the expression of his spiritual reality. The conflict exists between Apollo, symbol of ideals, of sculpture and painting in the realm of art, of intuition, measure, number, and refinement, and Dionysus, symbol of music, passions, savageness, and abandonment. Nietzsche [according to Jung (47)] was of an intuitive type with a tendency to introversion (Apollo) which found its expression, for example, in *Geburt der Tragedie* and *Also sprach Zarathustra.* He had, however, the earmarks of savageness, the signs of an untamed will (Dionysus), and indications of episodes of strong erotic excitement.

What are the pathological foundations on which is based the mental structure of individuals showing a conflict of tendencies? This is a complicated problem, and we are not trying to solve it. We shall submit only a series of examples, indicating their complexity. Mental overexcitability may cause the need of action which may be expressed in the form of good for the community, in reform work, etc., but it is usually associated with sensitiveness (vulnerability), isolation, repression of emotional needs, and self-mutilation. In individuals with homosexual tendencies there occurs often a struggle between their natural instincts and the feeling of shame, inferiority, and depression associated with knowledge of their abnormality. In drug addicts, alcoholics, and gamblers endowed with a refined concience, their tendencies are in constant struggle with the feeling of humiliation and helplessness. Compulsions and sado-masochistic impulses may be the bases of conflicts of different groups of tendencies (loss of some tendencies due to the awakening of aversion to them during the fight, love, and hatred involved in sado-masochism). The more they are equal in strength, the harder the struggles and the more intensive becomes the self-mutilation.

As we have shown, self-mutilation as an expression of the struggle of conflicting tendencies is met with in rather introverted individuals, whose subjective life overbalances the influence of objective life. A slight predominance of introversion over extraversion may be the basis of an excessive repression of tendencies of opposing natures, of a state of strong tension, and of self-mutilation (Jung).

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7. ASCETICISM

Asceticism, in the present meaning of the term, is based on the repression of natural requirements for the attainment of a chosen end, usually religious. The practice of asceticism in different forms is found in the most remote eras of human history. The investigations of *Durkheim (26) Levy-Bruhl, and others show* that asceticism is one of the religious practices among primitive people. The endurance of pain, discomforts, and fear were indispensable qualifications of a leader or of a high personality. The recognition of these qualities as of high value served to introduce training in the endurance of pain as prerequisite to entrance into the class of warriors and to the elevation from childhood to manhood. In Australia only those were included into the men's circle who had for some time practiced asceticism. In civilized Sparta the boys were hardened by beating. Prostration of Christian warriors in the form of a cross prior to battle finds its analogy in the self-torture of men of nomadic tribes (American Indians, Australians) before war. The ability to control his sensitivity to pain proves that the given individual will not be afraid of wounds in battle, that he has lifted himself above minor things, and that he is nearer to God. After showing his heroism he is honored; after passing through a series of hardships he receives membership in many select and secret organizations. The observation that moderate asceticism strengthens not only courage, endurance, and mental power but also health was one of the bases for the introduction of regular fasts on appointed days; this also was necessary before making the more important decisions and the taking of any important steps. There is also, largely from the same source, prohibition of dancing and other pleasures during certain periods. In many people moderate asceticism is one means of assuring fertility. Asceticism, sanctioned by the state and religious authorities, soon began to take collective communal form (convents, sects, secret societies, etc.). As we have stated above, such or other forms of asceticism are found in all known people, primitive as well as civilized. In some people asceticism did not go beyond the form of moderation and training in endurance (Jews, Greeks, Persians, Romans, Japanese). Among the Jews, ascetic customs before the period of exile, as well as after (Hassidism and Rabbinism), explicitly forbade tortures and ordered fasts, spiritual exercises, and meditation. The body to the Jews was the expression of beauty created in the image of God. Close observance of the laws and emphasis on the value of fertility were the only outlets from the misery and difficulties of the reorganization of life after exile.

Roman asceticism was an asceticism of warriors characterized by exercises in the endurance of fatigue and pain and practical competition for public leadership. Moderation, chastity, and temperance in food and drink were associated with the performance of religious ceremonies in Japan. These, together with orders to control their passion for their chosen desires, were the means to bolster courage and readiness for sacrifice. We shall deal more closely with Greek, Hindu, and Christian forms of asceticism, as the most original, and exercising the greatest influence on the religious life of humanity.

The beginnings of the practice of Greek asceticism are found in the Elysian Mysteries of the cult of Dionysus. We find in them the rôle of ecstasy in purification (catharsis) from the baser elements of existence. The struggle between soul and body, pessimism concerning the value of temporary life, the necessity for preparation for the separation of the soul from the body by suffering and by states of ecstasy are expressed in the Mysteries. In the Orphics we find mystic practices by which it was possible to enter into relation with the occult world. The interdiction of meat-eating was based on the belief that in animals as well as in man is embedded the germ of indestructible life. These ideas are also found in the Pythagoreans who practiced exercises of silence and emphasized strict principles of life, and also in Empedocles' belief in reincarnation (the basis for the prohibition of meat consumption), and asceticism as a method of liberation from sensual life. The conflict between matter and form, between the sensual, changeable, and temporary, on one side, and the intellectual, immutable, and eternal, on the other, is most strongly emphasized in Socrates, Plato, Aristotle, and in the Neoplatonism. The Cynics and Stoics realized these ideas most closely. For the former, the way to perfection was the systematic libertation from the outside world, limiting to the minimum one's natural needs; for the latter, strife against the sensual desires by submitting them to reasoning, by ruthlessly strict appraisal of the moral value of each action (absolute ethics, lack of appreciation of what lies between right and wrong).

The Greek asceticism emanates, as we see, from a philosophical investigation and the belief that there are two conflicting elements in man. The aesthetic taste of the Greeks, the development of their sculpture, their tendencies to philosophical contemplation, and the relative rarity of cruel persecutions and catastrophes were the factors which guarded the Greeks against practicing physical tortures. The Greek asceticism had a great influence on Europe, Asia Minor, and Africa, and especially on the Jews (viz., *Filon the Jew, De Vita Contemplativa*) and Romans.

Special sources in a particular phase of the development of asceticism are found in the Hindus. The Hindus are described as mild, cold, and passive. As a matter of fact, in the majority of cases they are nervous, emotionally and sexually overexcitable, and frequently impulsive. The mildness, calmness, and passivity is to a great extent the result of a turbulent mode of living and of a training and a philosophy of life grown out of experience and suffering. India was a country which afforded an abundance of such experiences: misery, starvation, malaria, and earthquake mercilessly sweeping away each year thousands of people, numerous victims of venomous snakes, the striking and humiliating antagonism of the castes (hunger of pariahs and their pitiful treatment in contrast with the wealth and power of the princes). An important factor was also the frequent conquest of India by people of little spiritual culture but of overwhelming physical force (Mongols, Mohammedans), or by powers seeking imperialistic development and material profits (British). These factors produced a feeling of helplessness, of fear and pain, and as a consequence, what is characteristic of people with whom one misfortune follows another, a subconscious desire for complete annihilation, the ending of the destructive work begun by fate. The daily occurring tragedies of life require constant adaptation to them. The Hindus adapted themselves to these conditions by resignation, self-withdrawal, mental shrinking, passivity, and self-mutilation, as means of becoming insensitive to pain, to misfortune, and death. They bore the tyranny of others calmly. A compensation for their humiliation was the feeling of spiritual elevation. Experience during the ages rendered permanent this characteristic attitude in regard to violence. The relation of the Hindus to reality was described in the holy books which were greatly respected as guides of life. One who was able to tolerate the worst experiences with indifference, especially pain and death, won the name of ascetic and the highest esteem and admiration.

In Bhagavad-Ghita we find the definition of an ascetic as follows: "It is one who has neither desires nor prejudices (ill will)" (39). In hyperexcitable and introverted individuals it was insufficient to reach the state of indifference to experiences of life; they found an outlet for their excitability in increasing the life experiences by the application of self-mutilation. The following passages from Hindu books indicate various immediate causes for self-mutilation, all of which have as a common basis the desire for the annihilation of pain by producing indifference to earthly pleasures, for attaining higher aims, *and for the transformation of the lowest orders* to the values of higher orders.

> He submitted himself to asceticism for a very long time and so battled his body that he became thin as a shade and almost turned into a spirit (53).
>
> He went into the woods Gangadvar, where he practiced the severest asceticism. Once when a fire fed by a strong wind broke out in the forest, Dhatarasztra not only did not save himself by escaping but he awaited, with Gandhari and Kunti, the tongues of fire as their deliverers.
>
> Dhatarasztra and two women, subjecting themselves to a sacrificial fire, understood that he gained for them eternal life in heaven (53).
>
> The King Kshatrya, surnamed Viswamitra, in order to surpass the sage Vashishta hopelessly submitted himself for thousands of years to horrible self-mutilation, which in the end led to the foundation of the caste Brahma (53).
>
> As the legend says, King Jonkhishaera tiring of life, and disillusioned, went to Mount Meru, and after many unpleasant adventures on the way reached the celestial mountains where he finally was admitted to the Swarg, the abode of happiness. Since that time many Saddhus courageously directed themselves toward the same goal, making this perilous journey alone and frequently never returning (11).

Sometimes the goal of the ascetic practice was the final annihilation of life, which was the source of all pain and evil. The fear of the continuous wandering of souls, with the belief that the path to the heights of spiritual existence or that this existence itself will be a continuous torture, was the basis of self-mutilation by continuous and agonizing wandering to bring the final destruction closer.

> Oftentimes this religious order (Dznjns) was joined by individuals tired of life. Bareheaded, barefooted, and nude, they wandered through India eight months out of the year, for two or three thousand years, often without assurance and even without trust in God. Mortifying their decrepit bodies only to prevent a new existence, they wandered constantly in order to assure themselves avoidance of the wandering of their souls,—eternal freedom and final annihilation (11).

Not all the forms of self-mutilation have as their aim the real elevation of the individual to a higher spiritual level. They were frequently combined with a tendency to dramatization, with tricks, produced for profit and the gratification of vanity and the excitement of admiration. Despite the difference between both forms we find in the second form an expression of the tendencies both to lift themselves to a higher level and also to get into the limelight. This is again a distorted way to perfection. As I have shown, the Hindus are introverts who rather favor mental dissociation, mysticism, and ecstasy. Many times the causal experience of agreeable states of excitement and ecstasy (accidental experience of fatigue, narcotization) was the basis for the application of this accidentally observed method of bringing themselves into this state. The observation that pain induced or increased the state of excitement had some significance in its adoption for this purpose. They used in India the diverse kinds of self-mutilation, ranging from the simple exercise of moderation in nourishment, clothing, talking, etc., to physical self-chastisement and the worst tortures. To the last belonged such forms as: spending whole days naked on spiked boards; holding the arms up for many months, or years, without interruption until atrophy of the muscles and stiffening of the joints set in; pressing the closed fists until the ingrowing nails broke through the palms. Different castes of Saddhus practice various forms of self-mutilation. Buddhism did not recognize self-torture but pointed the way to attaining insensibility to one's suffering by meditation and the exercise of control over natural instincts.

Christian asceticism was the result of a combination of Hebrew practices of moderation, Oriental influences (Egyptian, Hindu), *Greek philosophy, Christ's principles* based on his life and death, and finally the prolonged persecution which produced resistance to physical and moral pain. The last of these was due to the influence of the belief that earthly life is only a period of trial and preparation for eternity. The tradition of solitary and collective meditation, fasts, and other religious exercises as an initiation to the teaching of others, *Christ's directing the way to Him of those who would become* His pupils, and the *influence of practices in other religions* were the bases of the future establishment of monastic orders with rules for self-denial, prayers, and other forms of religious exercises. Whipping was one of the oldest and simplest forms of physical tortures based on the consideration of whipping as a punishment.

Asceticism had its periods of intensification during times of unusual stress (famine, epidemics, war, and earthquakes). Asceticism thrives most frequently in countries where the people are characterized by emotionality and sensitiveness (Spain, France, Italy, Russia), much less in Anglo-Saxon and Scandinavian countries.

The church did not officially recommend self-torture as a method of attaining perfection. Instead, it directed the exercise of self-denial in accordance with the principle that, by mastering oneself, one gains authority over others. Pope Gregory VII spread his reign over the world by withdrawing from it. The Protestant and Lutheran churches did not recognize asceticism. The unofficial but favorable treatment of moderate asceticism by the Catholic church was the basis *for the formation of* centers of asceticism by certain individuals who thus became founders of religious orders. Depending on the personality of the founder and on his experience, more or less strict regimentation was involved and different methods of asceticism were prescribed.

A series of facts shows that a great rôle in the practice of asceticism was played by ecstatic states, visions, etc., accidentally experienced or developed under the influence of reading the lives of saints, and based on mental excitability and tendencies to disintegration. Among Christian saints we find many personalities who were characterized by violence of emotions, bad habits, and the *tendency to utilize neuropathic* disorders. (St. Hieronius was tormented by the hardest temptations; St. Paul, St. Francis d'Assisi, and St. Vincent de Paul showed violence of feelings; St. Augustine and St. Anthony, the hermit, were inclined toward sexual excitability; Saints Mary Magdalen, Afra, and Margaret of Cordova were courtesans). Overexcitable individuals who are inclined to experience strong emotional states are marked also by a greater tendency to dissociation. Stimulation of a particular excitable group of tendencies leads to the realization of these tendencies, despite opposition, resistance, and struggle. A great conflict between opposite tendencies arises from various states of emotional ambivalence (attraction and repulsion, a need and fear of its realization) which, in conjunction with a degree of mental disintegration, is the basis of the domination of one group of emotions over the others. This is realized many times by way of self-mutilation. I think that the transformation from a state of sexual passion to one of asceticism, from unrestrained bad habits to self-control and idealism, may be effected by a struggle of conflicting tendencies in which one tendency or group of tendencies is driven out by another. The beginning of the victory is most frequently the states of rapture and ecstasy, whose intensification may bring about permanent changes in the mental structure and provide a foundation for the strong development of one tendency at the expense of the suppressed or vanquished one.

The knowledge of one's sexual excitability, the strength of which one experiences constantly and which is distinctly antagonistic to another group of tendencies, the need of sensual purity, may cause physical self-mutilation. Whipping and other means of torture are often a means of release of sexual tension; as witnessed in the case of St. Pasquales Baylon who answered, when asked by one of his companions whether he experienced sexual temptations: "Yes, but as soon as I feel them, I immediately whip my body with rods until the pain appeases the temptation" (52).

In the initial stage of self-mutilation, sexual excitability most frequently increases and it ceases or transforms itself into other forms of psychomotor release only in more advanced stages. Self-mutilation may intensify a state of ecstasy; therefore, one frequently tortures the body subconsciously in a state of ecstasy to reach a higher degree of exaltation. Sometimes reflection on the different possibilities of torture stirs up the individual to ecstatic states. This was the case with St. Theresa who wrote of the Child Jesus:

> Ah, above all, I wish to be a martyr; to be a martyr, here is the dream of my youth! This dream grew in me in a cell at Carmel. But here is another madness for I desire not only one kind of martyrdom but to satisfy me I should need all of them. . . . . . As you, my Adored One, I should like to be whipped, and crucified. . . . I should like to be plunged into boiling oil. I want to be torn by wild beasts like Ignatius of Antioch; to be bread worthy of God. With St. Agnes and St. Cecilia I should like to put my throat under the executioner's axe; to whisper the name of Jesus while burning at the stake like Joan of Arc. Jesus, open for me the book of the lives of the Saints, which contains the deeds which I should *like to accomplish for you.*

Reaching an ecstatic state by self-mutilation after its protracted practice requires very frequently an increase of the intensity of self-mutilation, because of the blunting of the excitability. On the other hand, exhaustion often follows a state of ecstasy and consequently there arises an unpleasant state of depression. Both these factors result in a need for an increase of suffering which becomes to some ascetics as essential as narcotics are to drug addicts.

> Only suffering can from now on make my life bearable, all my *wishes center on suffering: how many times do I raise my* voice from the secret recesses of my soul to God, "Lord, to suffer or to die is the only thing I am asking Thee" (46).

We have discussed above the influence of strong impulses, of violence of feeling, and of conflict between groups of tendencies in self-mutilation observed among the saints. There exists, however, another group, characterized by a weakness of certain impulses. The fear of the experiences of life, fear of sexual impotency and of the entire sexual problem, and a tendency to ambivalent action of these impulses (curiosity and aversion) are included in this group. The consequences of such weakness are an increase of the anxiety state, self-accusation, and self-mutilation. In the saints we find, according to the observations of physicians and others, various disorders of the nervous system, principally of a functional nature such as hysteria, anxiety-neurosis, and neurasthenia, as well as disorders of sensibility and attacks of violent pain. These nervous states are associated more or less with the disintegration of certain groups of tendencies and with self-mutilation.

In conclusion of this section on asceticism we shall consider Janet's theory which, although based primarily on the observation of self-mutilation in one female patient (observation over a 20-year period), gives some insight into one of the mechanisms of asceticism. At the bottom of asceticism Janet sees the fear of yielding to a flood of violent passions, together with the knowledge that submitting to them will lead to exhaustion. This patient of Janet's stated that she possessed the rudiments of the most dangerous passions and that, if she were not constantly on her guard, her passions, would dominate her and lead to unbridled licentiousness. This watching over herself, with the stifling of her sexual desires and the shrinking away from the difficulties of life, probably produced some suppression of other actions, which gave her pleasure. Janet *thinks that many cases of asceticism* can be explained by the need to escape from pleasure and the search of pain for the prevention of danger from uncontrolled debauches and passions. One may say that this is an action to assure a readiness to struggle with the passions, and also to assure a defense against future temptations. The fear of *experiencing what is usually considered a pleasure* is, according to Janet, the most important factor in this mechanism (44).

8. SUICIDE IN RELATION TO SELF-MUTILATION

We shall review here in brief only those kinds of suicide which reveal a common base with self-mutilating tendencies and primarily those which are the result of these tendencies. The starting-point is some exciting agent which, depending on its intensity, produces a disharmony of tendencies and becomes the center of the struggle in their attempts at redintegration. New complexes of tendencies arise by whose regrouping the formerly dominating tendency may be weakened. The reinforced exciting agent may subdue many tendencies to the disadvantage of the previously dominating one. Suicide follows in individuals in whom the undermined dominating tendency, which Janet calls the "reality function," becomes itself the irritating agent.

The suicide of Spitznagel, a friend of the great Polish romantic author Slowacki, is an example of suicide based on the irritability and struggle between tendencies. We know from the psychological works of Julius Slowacki that he was, in contrast to Spitznagel and despite his great overexcitability and tendency to depression, a type which easily realized his aims in the world of dreams and fancies by which he transformed real life as he wanted it. Spitznagel, on the contrary, needed to see spiritual values in life and had a much more strongly developed sense of reality and criticism, which did not allow him to transform reality at will. Not finding in the real world the spiritual values he sought, there was an intensification of the inner conflict resulting in self-mutilation and suicide.

Weininger's suicide was the result of an inner conflict between the need of spirituality and the sensual life symbolized by woman. In the period preceding his suicide, Weininger showed ascetic and self-mutilating tendencies, as well as a tendency to inflict pain on others.

Stavrogin's suicide (from Dostoyefsky's *Devils*) was the result of the continuous struggle of a whole complex of tendencies, namely, a tendency to auto- and hetero-mutilation, an attraction toward sin associated with a desire for atonement and a need and fear of self-derision. The desire to destroy fear led to an aversion to life and to the rejection of the dominating tendency, the ability to adapt to the changing conditions of life. An impulse to suicide, to kill the fear of death, is found in psychoneurotic individuals. Fear of the cruelty of passing from life to death, the destruction of beauty and of all signs of existence, forms an unbearable situation and a need for freedom from it.

The following fragments of Korzecki's conversation with Judym from *The Homeless* of Zeromski throws light on Judym's mental state:

> A young boy, a son of a poor miner, died here a few weeks ago. I brought him a little red hat once from Milan, a present bought on my trip . . . . for one franc. . . . Here in this garden he used to run and jump all day long. This little red head . . . . when I learned that he died of diphtheria, I purposely undertook the most important tasks, laid out plans, all in order not to think of him. Well . . . . and so it passed. *And then one evening sitting in the armchair . . . . I raise my* eyes and see a red spot moving along the wall. And in my ears rings his gay voice. Do I know after all if it was a spot? It was a sadness, red and awe-inspiring as the death itself of such an innocent life. . . . But I have also another sickness, I have an extremely refined conscience, there is an aching leftover. Misfortune and grief are the possessions of truth. Too great a distance lies between truth and the coal-pits.

In the character of Korzecki we find strong tendencies to self-mutilation in the form of irony and acrimony in regard to others as well as to himself. The too accurate observation of conflicts in life based on mental excitability and inner conflicts was the basis of self-mutilation and suicide. In individuals practicing self-mutilation, we often find the need for a gradual increase of the intensity of self-mutilation for obtaining a state of contentment. The gradual adaptation to agents of a certain strength leads to the infliction of ever increasing tortures; such situations may arouse suggestions of *suicide or attempts at suicide as the most effective means of self-*mutilation. This is a narcotization *sui generis* with suffering by which suicide becomes the strongest means of self-mutilating narcosis.

In states of depression, attacks of acute neurosis of vasomotor origin, in connection with which there arise a feeling of doom, a feeling of impending death, or a fear of insanity, suicide may appear to be the only means of liberation from an unbearable state after self-mutilating attempts at suicide. The experiencing of a suicidal attempt and of freeing oneself from states of restlessness in the moment of decision to commit suicide increases the need and transforms it into an obsession. Individuals revealing tendencies to self-mutilation and suicide often have a feeling of aversion or of strangeness to oneself. One of Janet's patients who jumped out of the window motivated her decision by a wish to die by her illness and a feeling of wretchedness which, however, had no apparent organic basis. We associate symptoms similar to the above most frequently with a state of hypochondria, melancholia, etc., based, it is supposed, on a disorder of deep sensibility, of which nothing more definite can be said at present. A more exact knowledge of the mechanism of these feelings will most likely enable us to throw light on this type of suicide. The patient's difficulty of finding the cause of this feeling of wretchedness intensifies the struggle with the latter and increases the state of restlessness. This leads sometimes to rebellion against the ill-defined, obscure, and consequently most unpleasant excitation and, in these conditions, the instinct of self-preservation becomes itself the strongest exciting agent and produces a necessity for self-destruction. The above factors, which are at the bottom of self-mutilation and suicide, have their sources in the psychophysical structure of the individual (disharmony in a group of tendencies, neuropathic states, disorders of deep sensibility).

Difficult mental conflicts and an abnormal educational environment have a great influence on the arousal and development of suicidal desires as enlarged self-mutilating tendencies. Parental love and the child's feeling that he is of some value play a great part in the development and transformation of the child's egocentrism. An abandoned child is deprived of the influence of these factors. A break in the physical and spiritual contact with the mother and disorders during the developmental periods cause a weakening of self-esteem which retards the development of the instinct of self-preservation. The feeling of affection and cordiality is to the child as indispensable for his mental development as feeding is for his physical growth. The gradual development of self-reliance and of the ability to adapt easily to new surroundings is based on the feeling that in case of mistakes one has the unfailing help of his dear ones. Lack of this assurance causes mental overexcitability, a feeling of uncertainty and self-appraisal as an unnecessary and useless individual.

This is illustrated by the case of 15-year-old *Z*, who was disliked and neglected by her parents. Before one of her suicidal attempts she left her governess the following note: "I can't live without any security; I wanted to be a good soldier but I guess that I am only a coward." Before attempting suicide she often emphasized the worst sides of her appearance and character. She said that she wanted to die, that it is "better to disappear in the darkness."

"Injury and humiliation" as a basis of self-mutilation and attempts at suicide is illustrated by the following passage from the autobiography of *Z*:

> I have the misfortune to belong to the class of the unknown, the homeless and the unnecessary in this world. From childhood, since I realized what a homeless child means, a horrible question tormented me: why didn't I have parents, why am I so unhappy? I envied all children their parents, especially when a mother caressed her child in my presence. I did not even try to go near the children of wealthy parents because I considered myself something inferior, evil and despised. . . . I willingly tried to comply within the limits of possibility with my guardian's instructions, but revolted more than once, which led to misunderstandings during which my guardian derided my origin and stated that such homeless children were good for nothing, that they were outcasts of society, who will never come to anything good. . . . I hated the parents, especially my mother, who for her momentary pleasure (when fifteen, I already understood it) brought me into the world and threw me at the mercy of fate instead of depriving me of life before birth, or immediately after. (If I met with such a misfortune, I would kill myself and the child.) When the guardian taxed me, as it seemed to me, too much, I decided to do away with myself. I then constrained myself to eat nothing the whole week; I became so weak that I fainted, but, death did not come. . . . After a few days of rest, and after again hearing the usual reproaches, I ran out several times at night barefooted in the snow or opened the window and stood there for sometime in order to catch cold and to die sooner, for such a life is a martyrdom.

Suicidal tendencies, especially in youth, may, according to Adler's theory, develop on the basis of a feeling of inferiority which in turn may be caused by an inferiority of certain organs, by conditions of life, or conflicts in the family. As exposure to sickness and pain is often a form of self-mutilation in order to arouse pity among the interested ones, so may the contemplation of and attempts at suicide be used to arouse pity and to injure others. The refusal to eat and exposure to cold are often expressions of a need to attract attention or to play an important part in life. Lacking other means to reach the first rank and to arouse interest, one looks for it sometimes in dreams of death or in suicide. Suicide can finally be the strongest form of protest or vengeance for failure in life, the last stage of self-mutilation and, therefore, also of the torture of others (2).

Individuals whose lives are predominantly inner, introverts and schizoids, have ordinarily little emotional plasticity. Their emotional relationship with others is usually very deep and thus their disappointment and disillusionment more easily destroy their mental unity. Emotional overexcitability, ambition, and self-consciousness are the factors which prevent them from occupying themselves in the daily tasks because they brood over their mistakes. An unbearable state is created not only because the given individual has lost, for instance, a person with whom he was strongly connected emotionally but also because he himself has made such a mistake that the object of the emotion was not in keeping with an emotion of high moral value. In such a state, aversion and hatred may be turned against oneself as the cause of these mistakes. Sometimes psychic injury has such a force that it irreparably destroys the mental integrity. Emotionally overexcitable individuals, unable to create a philosophy explaining their past sufferings, often end by suicide. The impulse of self-destruction may begin with physical or psychical self-mutilation and end in suicide.

9. SELF-MUTILATION OF MICHELANGELO, DOSTOYEFSKY, WEININGER, DAWID, AND TOLSTOY

MICHELANGELO

Michelangelo Buonarotti had a characteristic group of self-mutilating traits. A series of complicated factors played a part in the arousal and development of these tendencies. His father was irritable, unstable, and inclined to phobias. Nothing definite is known about his mother. His mother's tiresome horseback trip a short time before his coming into the world may have had some influence on Michelangelo's nervousness (78). Severe punishments by his father and uncle for neglecting other studies because of his preference for drawing and sculpture were also not without influence (78).

At about 17 years of age he had a nervous shock when one of his companions, Pietro Torrigiano, in a fight broke the former's nose with a blow of the fist. The disfigurement remained permanent. Michelangelo had a strong but not well-porportioned figure (the upper half of the body was more strongly developed than the lower). His forehead was large in proportion to the whole skull. Since his early youth he was subject to many different ailments (headaches, neuralgia, toothaches, eye-aches, kidney and bladder stones); despite this he lived to be very old (12). Anxiety associated with nervousness, awareness of his physical unattractiveness, and past humiliations caused the birth of a feeling of inferiority compensated for by a tendency to irony, disdain, and irritability. Emotional hyperexcitability, at times when it was difficult to find a full outlet in art, released itself in self-mutilation, a characteristic means of release for the type of anxious and distinctly introverted individuals to which Michelangelo belonged. Emotionality and a predominantly inner life produced a strong need for love and deep enduring friendship. However, he experienced in this respect not only disappointments but also humiliations. One of his beloved ones played with his excitability: she excited his jealousy by flirting with others. He detested her in the end; he begged fate to disfigure her, and to make her fall in love with him, so that he could in his turn refuse her love and cause her pain.

> Michaelangelo suffered on account of his bad looks because to such a man as he, loving physical beauty more than any-

> body else, ugliness was a disgrace. Traces of this feeling of humiliation are found in a few poems he wrote. This feeling was the more vexing as during his whole life he was consumed by love, and it does not seem that any of his love was requited at any time . . . . .

A strong affection for Victoria Colonna and Th. Cavalieri did not cause him disappointment. The first affection was rather a friendship characterized by platonic love; Victoria Colonna had many masculine traits. The features of her face betrayed a strong will, a certain hardness (high forehead, long and plain nose, the upper lip short and peevish, the lower lip prominent, tight-mouthed, chin salient). Her profound knowledge of art and taste for the sciences were the outstanding reasons for the existence of this affectionate relationship. His emotional contact with Th. Cavalieri, a mixture of friendship and platonic love, showed traces of pathological infantile affection, as Rolland points out.

> He wrote him letters (Th. Cavalieri), he turned to his idol with humble groveling submission. He called him a powerful genius, a wonder, the light of the century. He begged him not to scorn him, that he could compare himself with him, whom nobody could equal, he offered him in tribute his life, all his future. . . . .

Taking into consideration the peculiar form of his emotional link with Cavalieri (who must have been a very handsome man) and his feeling for Victoria Colonna, a woman of a rather masculine type, one may asssume the possible existence of a certain homosexual and infantile trait in the genius of sculpture. Another indication of this is his portrayal of young forms of physical beauty in art, his lack of desire to marry (from a group of five brothers including Michelangelo only one was married), and a feeling of particular affection for handsome adolescents. This, however, was not of a definitely pathological character. Traits such as the subjection to mood changes the difficulty or impossibility of making a decision, and outbursts of anger point also to infantilism. From childhood Michelangelo suffered from states of anxiety. He was afraid of being infected with the Black Plague and worried about the health of his family; he was afraid of persecution and attacks on his life.

Most frequently, moreover, he suffered from a groundless, vague restlessness and from fears of pending misfortune (12). He was continually undecided, never being able to make up his mind to choose between two projects. He could not reach an agreement with himself and changed his mind frequently, which led him to outbursts of anger and shame, and caused self-aversion and self-hatred. States of restlessness, associated with physical troubles as well as with excessive mental excitability, the feeling of inferiority, and his introversion were the causes of reversals of decisions and changes in points of view. This led sometimes to lying and flattery. The realization of his condition and the hatred of certain traits of his character were the bases of self-mutilation, whipping, and asceticism. Michelangelo's excitability expressed itself also in excessive activity and in a pathological ardor for work.

Once while horseback riding he noticed a mountain dominating a whole region, and the desire arose in him to forge it into the Colossus visible to sailors from afar. He worked furiously, forgetting food and sleep. He wanted to do everything himself; it gratified him to support his father and his brothers by his work; he helped everywhere. He was seldom satisfied with himself and felt that he could not express in his work all his thoughts and desires. In letters he inserted postcripts, then destroyed most of them, dispatching few. The magnitude of his work, despite his tremendous energy, increased his restlessness and his doubts of being equal to his task. Behind the above-mentioned character traits was, on the one side, the feeling of talent, and, on the other side, a continuous restlessness which was seeking motor release in his plans and works. Here also lie the will to power and the need of greatness which were associated with the need of creation and also with feelings of inferiority in certain respects and the striving for their compensation. States of depression were caused by an excess of these needs, the superabundance of ideas and desires being in disharmony with the possibility of fulfillment. The feeling of inferiority, extreme sensitivity, and dwelling above all in the world of creation were some of the causes of his solitude and of his difficulties in relation to others. It was part of Michelangelo's individuality and at the same time an expression of his instinct of self-preservation and creative need to protect himself against the feverish political life and the superficialities of contemporary society.

This increased his difficulties in adapting to new surroundings and intensified his states of fear. The lack of expression of sentiment and the difficulties in his everyday life were compensated for by his tightening the emotional link to the family and to a small number of friends. The death of his dearest ones, resulting in increased solitude, with the coexistence of the above-mentioned traits produced pessimism, weariness of life, and yearning for death. Nobody was less receptive to joy and better created for pain. He noticed only pain in life; pain only he felt in the immense universe. "A hundred joys will not outweigh one torture." "All afflicts me," he wrote, "even the good because its brevity oppresses and saddens my soul as much as the wrong itself." He grew each year more sullen and the idea of death absorbed him more and more; he congratulated his nephew on the loss of his infant son. His room was as gloomy as a grave. On the stairway he painted Death with a coffin under his arm. He lived miserably and he entirely neglected himself. His plunge into the problem of death acted on him repulsively and alluringly at the same time. Often in such a state he indulged in mystical worship toward which he had had a tendency for a long time. He retained this association with his ascetic mode of life. (He ate only to keep himself alive, he slept in his clothes and shoes, and he suffered all kinds of discomfort.) He remained emotional and hyperexcitable, with an "absent-mindedness" in every kind of undertaking. In the last years of his life he thought less and less of his creations, giving them away and sometimes destroying them. When he finished work on "The Taking Down from the Cross," he broke it with a hammer. He would have shattered it to pieces if not for his servant, Anthony, who begged him to make him a gift of it. Such was the indifference which Michelangelo showed towards his work just before his death. The following factors contributed to his increasing pessimism and withdrawal into himself: the frequent chronic pathological disorders; the feeling that he was inferior in looks and in certain character traits; continual restlessness; the need for and lack of a strong love and the appreciation of his own genius and great moral value, together with the realization of his vacillation; lack of decision, lies and flattery; sudden arousal of likes and dislikes; disharmony between his numerous plans and the unfulfillment of the majority of his projects; the greatness of his ideas and genius of his work, and the frequent immaturity of his procedure; and lastly, continuous disappointments in life. The lack of an adequate outlet in family life and love, and the aversion to life were compensated by his ardent pathological addiction to meditation on death, and on the organization of the environment which continually reminded him of suffering. Becoming accustomed to suffering and realizing that it is inseparably connected with our own minds, that through its intensity and its interweaving into life it constitutes our personal property, causes in such individuals as Michelangelo a fervent worship of suffering and death.

DOSTOYEFSKY

Self-mutilation constitutes one of the most important personal traits of Dostoyefsky as well as of the heroes in his works. From authoritative sources concerning his life and from an analysis of his works, the following factors come to light as the bases of his self-mutilating tendencies and their realization:

1. Emotional overexcitability and a decidedly predominant inner life (introverted type).
2. Feeling of inferiority.
3. Lack of harmonious refinement of his personality (mental disharmony, conflicting groups of tendencies).
4. Acceptance of the philosophy of suffering as the most perfect system of living (on the basis of personal experiences).

We shall endeavor to examine these factors one by one. Dostoyefsky, from his childhood, showed signs of emotional overexcitability and nervousness. He suffered from nervous headaches and palpitations, according to Dr. Jaworsky (a close acquaintance), and showed symptoms of hypochondria. According to his wife, friends, and acquaintances he was of an explosive type, excitable, and inclined to extremes in feeling, judments, and actions. Soloviov (a Russian philosopher and a friend of Dostoyefsky) describes him as a very sensitive man, a subjectivist who found references to himself in the most innocent conversations. This excitability brought him to the border of insanity. In states of excitement he was irritated by trivialities. Once the slamming of a door joining their rooms by his wife provoked a nervous outburst. On another occasion he threatened to jump out of the window if she talked loudly. He was suspicious and groundlessly jealous; he often reacted with outbursts of anger to simple jokes. In states of excitement he showed a lack of self-control and judgment. This may be illustrated by his *behavior when playing roulette. He would leave his wife at home* without a penny, to spend his last few coins on the game, directing her not to yield him her savings despite his requests, and yet he would burst out in anger and beg for the remaining money after his losses in the game. He very often realized his pathological impulsiveness, but was unable to control it. Dostoyefsky said to himself that he was subject to great excitement, that all his life he was of a passionate nature, and that in his impulsive acting he would go beyond the normal. One of his heroes expresses this state in the following way: "I realized perfectly that I exaggerated these facts immensely; but how could it be helped? I had already lost control *over myself and was trembling as in fever . . . when I once felt* the urge for something, I went headlong after it." He easily fell into childish fears about his wife and children and often expressed a feeling of impending death. The mental overexcitability and the states of anxiety produced an unbearable self-consciousness, causing frequent outbursts, loss of presence of mind, and ridiculous actions, which became the basis of a feeling of guilt, humiliation, and self-accusation. Lacking the possibility of finding an outlet for the tension, the state of restlessness and excitement increased. The knowledge of an inner source of these states strengthened his self-accusation and self-mutilation. Dostoyefsky writes of himself that *in the absence of outer excitation* the inner ones became predominant and caused nervousness and day-dreaming (13).

This scarcity of outer excitations can be explained by the conditions of his rearing as well as by the influence of overexcitability and hypochondria. Dostoyefsky's parents spent a rather isolated life, and the children had no companions at home or even later at school. The lack of this broader relationship was compensated by a tightening of the link with the siblings, and hence one had to have his brother's traits to be a real friend. Dostoyefsky did not dance, he avoided the large meetings and brightly lighted places, and showed from his early years a tendency to discuss the principles of life. He hardly knew the countryside, did not embrace nature, and it played no part in his life and creations. He was a novelist of the town, a talented creator of darkness and of human evil. Being an introvert, he was predisposed, under the influence of these tendencies, to inward reactions, to an inability to associate with others, to states of anxiety, to excessive inhibition, and to self-mutilation.

In Dostoyefsky's personal experiences as well as in his works, the feeling of inferiority is found as the basis for self-mutilation. In the awakening and development of this feeling in Dostoyefsky the following factors are found: debility, epilepsy and other ailments, a feeling of solitude, an inability to associate with others because of which he could not take his true place in the social life, and, lastly, the feeling of humiliation in connection with his passion for roulette. The emotional state, associated with feeling of unworthiness, finds an outlet in self-mutilation (exposure to humiliation, exaggeration of instability, self-abasement, and deliberate cynicism, physical self-mutilation, etc.). This is a "laceration of the wounds" (Zeromski), the desire for palpating one's painful spots. Individuals of such a nature often compensate for this feeling of inferiority in the world of dreams and in asceticism. These states are illustrated most strongly by *Memories of a Man from Underground*, *A Raw Youth*, and *The Insulted and Injured*, fragments of which we quote as follows:

> The worst fact, however, was that I thought I had a stupid face. . . .
>
> I know from looking in the mirror that my appearance is damaging to me because I have a common every day face. If I were only rich like Rothschild, who would pay attention to my face? Could not thousands of women, if I would only whistle to them, come flying to me with their beauty?
>
> I have forgotten even the beating but I could not for anything pardon the way he pushed me aside without noticing me at all. . . .
>
> It was the torment of torments, a ceaseless, unbearable feeling of humiliation, because of the thought which was turning itself into a continuous impression that I was a fly on the face of the whole world, an ugly unnecessary fly, the most reasonable intelligent and the noblest, that is another thing, but just the same a fly, which yields to everybody, whom everybody humiliates and insults . . . , no, I am simply Dolgoruky, an illegitimate son of my former landowner, Versilow. . . . .

> Don't dare to sit together with well-born children, you are of a low origin the same as a lackey. And he slapped me very strongly on my plump pink cheek; and relishing it, hit me again and again. . . .
>
> Each time I come to a place where there are many people, I get the impression that the eyes of everybody present act on me like electric sparks. I begin to shrink, to shrink physically. . . .
>
> I could not acquire the slightest dignity. Once I reproach myself for an excessive softness and politeness, and again I get up and commit some rudeness. . . .
>
> Everybody always laughed at me, but nobody knew that I was more conscious than all of them of my ridiculousness. What offended me most was that they did not guess it.
>
> A secret feeling of power is more unbearably delightful than an open domination. If I were a millionaire it seems to me that I would find pleasure in wearing the oldest suit, so that I could be taken for a man of no account, almost a beggar, to be pushed and disdained. A knowledge of my true position would be enough for me.
>
> Who knows that from my first dreams or almost from the earliest childhood I could not imagine myself otherwise than in the first rank.
>
> I started to test myself to see if I was fit for a monastery and asceticism. To that end for a whole first month I ate only bread and water, afterwards I added soup, and morning and evenings a glass of tea. . . . So I lived a year in complete health and moral contentment, in continuous happiness and enthusiasm.

Many factors contributed to produce the lack of harmonious formation of Dostoyefsky's personality, his instability and tendency toward mental disintegration. His sensitivity and facile explosiveness produced changes in his relationship with his dearest ones and with himself. The passion for gambling was so strong that it transformed him mentally. According to reports of his wife he became loathsome while gambling (flushed cheeks, inflamed red eyes, trembling.) Besides this the hypochondriacal state and epileptic attacks were also an important factor in the periodic transformation of his self-consciousness. Dostoyefsky also had certain infantile traits (changeability of mood, dependance, suggestibility). From these sources arose states of enthusiasm and aversion, love and hatred, feeling of his own value and scorn of himself, and excessive idealization alternating with exaggerated criticism.

The more nearly equal the strengths of the conflicting groups, the more the conflicts and their struggle are sharpened and the disintegration deepened. A strong repression of the vanquished traits by the victorious ones is associated with an increase of tension. The *aroused resistance intensifies* the repression, causing outbursts of rage and hatred in relation to himself. A return of victory to the originally dominating traits causes self-vengeance and release of the stifled tension by self-mutilation (in introverted types). In individuals of ambivalent feelings, a longer suppression of feelings or actions of base moral value may so intensify their tension that freedom from this state requires a very strong agent in the form of, for instance, the commission of a very degrading action below the *standards of the perpetrator.*

Dostoyefsky had a highly trained ability to penetrate into personalities and was exclusively interested in the inner life. Hence, in his own life, and in the lives of his heroes, we often see an abnormal interest in their own most unpleasant experiences. The passion for self-observation was the cause of experiments on himself, leading to his exposure to injuries, to day-dreaming about the most ghastly subjects, to the exercise of the innermost impulses in order to examine them, and to experience a deep feeling, shocking and unknown. The interest in the possibility of experiencing unusual states may change the normal direction of one's tendencies. This is due to the effect of consciousness on the regrouping of the tendencies, and we observe a slight degree of dissociation of the personality into three groups, of which one is self-observation, and the other two are the conflicting groups (for instance, love and hatred, pride and humiliation, pleasure and pain). Abasement, going down to lower *depths of life,* may be a means for emphasizing in a pathological way one's peculiarity and unusualness in the realization of these states. Dostoyefsky's own real experiences, as well as the one created in his imagination, are illustrated by a series of passages from his works:

> *Each moment I realized* the existence of many most conflicting elements. I felt the turmoil in me. I knew they were always seething in me, that they tried to get out of me, but

> I did not let them, I purposely did not let them out. . . .
>
> *Not only was I unable to become bad, but I became as nothing at all, neither bad nor good, neither vile nor upright, neither a hero nor a worm. . . .*
>
> These changes occurred in me somehow suddenly, for some time I could despise others, and here, suddenly, I began to raise them above myself. . . .
>
> Besides that, a depression was emerging, a hysterical longing, *and contrasts and* conflicts were appearing, so I clung to debauchery. . . .
>
> Please tell me, why did it happen to me, as if purposely, *exactly in moments during which I was most able to realize* with all subtleness "what is beautiful and sublime" as they once said, that exactly at that time (this I cannot account for) I had to commit such improper actions, which . . . well, just actions, which everybody commits, but which slipped out of me, as if purposely at that time, when I realized that this should never have been done. . . .
>
> I came to the point wherein I felt some secret abnormal vile satisfaction, when returning to my corner sometimes during St. Petersburg's horrible nights. I painfully realized that today I again had committed obscenities, that what was done could not be undone, and inwardly I was gnawing at myself and exasperated myself to such a degree that the bitterness *transformed* itself finally into a shameful weakness, followed afterwards by a definite delight. The voluptuousness arose in this case on the basis of too sharp a realization of my degradation. . . .

Dostoyefsky's life, full of sad experiences and of suffering, had forged these elements into his sex and love experiences. As much as the love for his wife brought him calmness and satisfaction, so the love for Mrs. Suslova was bound with humiliation, restlessness, and other forms of suffering (abrupt breaking off, and making up, misunderstandings, attraction and repulsion). Dostoyefsky was of a rather passive, infantile type; Suslova was dominating, active, inclined to tyranny, categoric, and extreme (she divided people into the holy and the vile). Many of her relatives said that she was given to blind spells of passion. She had a commanding beauty and certain perverted traits (sadistic). She showed in regard to Dostoyefsky love interwoven with periods of aversion and hatred. She demonstrated to him practically that love may be associated with hatred, including sadistic and masochistic tendencies (13). She excited his sexual desires and then refused relations. Her irony and sarcasm, preceding and surrendering to passions, played the part in associating suffering with joy, abasement with delight. Tormenting and degradation of emotional, overexcitable, but weak-willed individuals by a beloved person increase the normal sexual excitability. In such conditions the increase of irritation, anger, and hatred in relation to the object of feeling may be transformed into strong adoration and ecstasy. The experience of such a state leaves a trace combining pain with pleasure. In *Idiot, Memories from Underground, Humble,* and others, we find a series of characters and experiences illustrating the above-mentioned emotional states: "That I wanted more and more to lie at her feet, and again to kiss the ground on which rested her soles, and worship her." "My eyes were inflamed with passion; and how I detested her and how she attracted me at that moment."

Dostoyefsky's life brought him many sad and tragic experiences. As mentioned above, he was emotionally strongly attached to his family, and he had no capacity for association with his colleagues. The conditions of life arranged themselves so that he could not, since his early youth, live with his family. As a young college student (17 years old) his father was murdered. A few years later he was accused of anti-governmental activities and sentenced to death. The sentence was read to him with all the formalities and he was convinced that he had only a few minutes to live. At the last moment the death sentence was commuted to several years imprisonment in Siberia. In the *Idiot,* Mishkin mirrors Dostoyefsky's emotions in regard to capital punishment in the following way: "Who can say that human nature can bear it without becoming ill? Why this incomprehensively unnecessary degradation?"

The restraint of the prison and his debasement to the criminal class created an unbearable state. There began the epileptic attacks, the state of mental disorder, which, Dostoyefsky tells, seemed to be distinguished by a mental splitting and the separation of the processes of thinking from the emotions and the will. For a man who loved to be alone, to remain with his thoughts, it was unbearable to stay among the criminals under the constant surveillance of the guards.

He wrote about it in his letter to his brother Michael:

> "For five years I have been under the control of wardens in a crowd of human beings, and never, *not even for one hour*, was I alone. To be alone is *indispensable for a human being*, as is drinking and eating; otherwise, in this forced communal life *you become a hater of mankind*" (13).

One can find three phases of reaction to suffering in general, and *especially to the unmerited and forced* sufferings of the overexcitable, *introverted individual*. The *first* is a *momentary state* of stupor, followed by a feeling of rage and hatred against the cause of suffering; the second is a somewhat chronic state of psychic intoxication with suffering, self-retirement, and a necessity to frighten others with his suffering; the third and last, is the *creation* of a philosophy of suffering on the discovery of its power to deliver one from the higher moral values. It is clear that I am giving here only a brief outline. In principle, however, it is in accordance with the reaction to Dostoyefsky's suffering and many of his heroes. Such an adaptation to suffering may not reach the third phase, but may stop at one of the intermediate stages. The less clearly the perpetrator is determined and the more distant he is, the greater is the state of excitement and helpless anger. *I have already mentioned*, in *the first* chapter, that indistinctly localized vague excitations cause a stronger mental tension and make its release more difficult in contrast to the simple visible excitations. Such vague and poorly localized excitations are seen in self-mutilation in the psychic sphere, where the suffering is undeserved and imposed by an unknown perpetrator (forces of nature, laws of society for which all of society is responsible, etc.). *The lack of a starting-point for the outlet of tension* causes states of helpless fury. In overexcitable and introverted individuals of a high cultural level two things may occur simultaneously in the first and second phases as a reaction to great misfortunes: suicide and mental disease. Suicide is rarely met with as a reaction in passive types (Dostoyefsky). In order not to reach the third phase, a *suffering individual must find* some points of support, even illusory and weak. We think that in the case of a type like Dostoyefsky, these props were the feelings of exclusiveness and superiority by tragic living, and a feeling of delight in suffering, which may be the influence of the instinct of self-preservation in a helpless situation. To this we must add the decrease of tension by frightening others with his sufferings and its demonstration in a most painful way. Dostoyefsky embraced a gulf of suffering, misery, and primitive passions; these traits became his second nature. His first suffering is imposed on him, but later this is weakened and diluted by his *voluntarily accepting an attitude of suffering*, which he then exhibits for the attainment of sympathy and exciting of interest. Only after many years does Dostoyefsky begin to glorify his punishment and his suffering, reaching the third phase of reaction—the formation of the philosophy of suffering. In *The Brothers Karamasov,* and especially in the *Idiot,* he introduces submission to suffering (Mishkin) as a principle of life. In the figure of Mishkin he presents his thesis that spiritual strength is associated with physical weakness and suffering. The three indicated phases of suffering are illustrated by quotations from Dostoyefsky's works:

> Even a toothache can cause pleasure. These groans firstly drive away all your humiliating consciousness and the aimlessness of the experienced pain, the whole immovability of nature, for which you suffer in spite of all. But nature does not.
>
> Consciousness departs, the enemy is no more; the pain, however, exists. The knowledge that if somebody, somewhere, somehow desires it, your teeth will stop aching, and if not, they can go on aching for three months and finally nothing will remain for your comfort but self-whipping or strongly striking of your fist against the wall and absolutely nothing more.
>
> The man looks, the cause disappears, the reason evaporates, the guilty cannot be found, the offense stops being offensive and changes itself into fate, something similar to a toothache, for which nobody is responsible, for which there is the same remedy, striking the fist against the wall.
>
> She (Nellie) was begging, not out of necessity, she was not abandoned, not left at the mercy of fate. She ran away, not from cruel persecutors, but from friends who loved and adored her; she wanted to astonish and frighten with her actions, as if boasting about her actions. But something mysterious ripened in her soul. . . . So, the old man was right, she was insulted, her wound could not heal, as if she tried purposely to irritate it, with secrecy and distrust of all of us as if she delighted in her pain, in this egotism of sufferings, if we may

> *say so. This aggravation* of pain and the delight in it was comprehensible to all; it is a delight of many of the insulted and injured, oppressed by fate and feeling this injustice.

In Nellie the need for confidence and sympathy were struggling, on the one hand, with the fear of confidence and, on the other hand, with a recollection of past tortures. The plastic mind of the child *embraced too many tragedies and injustices* and, therefore, it could *not get out* of the chaos which *had arisen following her transition* from the atmosphere of insult and violence into an atmosphere of friendship. The state of intoxication by suffering lasted for such a long period that it led to a habitual search for sad experiences because of a need for the assurance of the permanency of the change. *The struggle of conflicting tendencies* led *after a long period* to the formation of a new system of tendencies.

> I used to have such moments, that if it happened that somebody slapped me in the face, possibly I would even be glad. I say that certainly I could succeed in finding, even in such a *case, a certain feeling of pleasure; of course, a pleasure of* despair but nevertheless it is in despair that the greatest delight is located, especially when one clearly feels the hopelessness of a situation.
>
> The knowledge of infamy glimmering through for a moment, *knowledge which made my soul shiver—will anybody believe?*—was intoxicating me all the more. Why, if one must fall—one must.
>
> I realized well this despair, yet—will anybody believe?—ecstasies grew in my heart to such an irrepressible degree that I thought I was dying.
>
> *Well, from these insults, from these railleries of unknown* origin, begins finally delight, reaching sometimes the summit of voluptuousness.
>
> *Well, a man loves not only well-being, does he like suffering* in the same degree? Sometimes a man likes suffering very much, to an insane degree.
>
> Suffering—why, it is the principal cause of conscience. True, I declared that conscience is man's greatest misfortune, yet, I know that man loves it and will not exchange it for any pleasure.

These examples illustrate how the philosophy of suffering grew out of Dostoyefsky's personal experiences. He reached the summit of suffering beyond which could only be mental disease.

WEININGER

The mental profile of a young suicidal thinker is clearly outlined by an analysis of the work and correspondence of Weininger as well as by the testimony of his friends. His had a mentality inclined to a strong degree of self-mutilation. Despite his exceptional capacity for logical analytical thinking and a great mental penetration, Weininger's synthesizing ability was artistic rather than scientific. His ideas, which could form at most a skeleton of theories requiring many changes and completion, were for him, due to his suggestibility, negativism, and emotionality, real values with which was associated an obsessive need to convey the proof of their exactness. His chief work, *Sex and Character,* has an unbalanced scientific value. Much as the first part is a systematic, highly objective analysis of a biopsychic hypothesis, so the second part forms the summary of a subjective judgment permeated with emotionality, and striking by its arbitrariness. The first shows the needs of the author's mind; the second, the needs of his impulses. The whole reflects the author's changeability of methods and moods and a certain childishness of his mentality. It bespeaks also a conflict between mind and sensuality, between what is free (noumenon) and what is not free (phenomenon). The opposing natures of the basic tendencies is the cause of the struggle between them, where the strength and duration depend on the difference between the strength of the conflicting tendencies, and the more this force reaches equality, the fiercer is the fight. Herman Swoboda (77) aptly states that "Man liebt die Widerstände, die man besiegt, man hasst die Widerstände, vor denen man zurück weicht."

Conflicts hard to combat and continuously irritating sharpened the antagonism of tendencies in Weininger. Through autosuggestion these grew and took on a stubborn character. In the world of ideas, this conflict and the hatred of conflicting tendencies took in Weininger the form of a struggle between the mind and sensuality, which in him became identified with the struggle between male and female. The above process points to a certain mechanism, in the development of the process, of the basic rôle of autosuggestion and tendencies to sensual and emotional obsessions in the arousal of a hatred of one's own tendencies. Continuous mutual irritation by conflicting tendencies contributed to the formation of emotional or logical arguments for the degradation of the conflicting tendencies. All of Weininger's nearest friends call attention to his tendencies to self-mutilation and to asceticism, and especially the fear in the last month of his life of suicide. He exhibits, on the one hand, a search for the vilest traits of woman and, on the other, asceticism, the *striving for sanctity*. Exhaustion in the struggle without result was implied in Weininger's opinion that there are three ways out of mental conflicts: "Selbstmord, Galgen oder ein Ziel, grösser und herrlicher als es jedem Mensch errungen."

The agent determining Weininger's death was, rightly, the conflict between the announcement of his work, which proved the lack of soul in woman and considered her as a sensual element, a denial of existence, and the impossibility to reconcile his conduct with this theory. But the development itself of such a situation points to a predisposition to self-mutilation. Self-mutilation was here an extreme form of striving to destroy certain tendencies. The publication of *Geschlecht und Charakter* put Weininger in a situation without a solution, because if he remained alive he would have to behave in conflict with his theory and tell lies which would, according to him, carry the greatest harm to the mind, and be a sign of retraction.

J. W. Dawid

The eminent Polish psychologist known in the United States for his work entitled "Intelligence, Will, and Ability to Work,"[8] represents one of the few figures in scientific literature whose mental attitude molded during thirty years of mature life and active work was completely changed as a result of a great shock, which became the fulcrum of shifting tendencies repressing one another.

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[8] The value of this work may be judged from the contents of the following letter received by Dawid: "Having read your work, we all heartily wish to see it published. In the meantime, President G. Stanley Hall decided to make for you a rare exception. If you will trust us your manuscript, we shall copy and publish it in an abbreviated form in the *Pedagogical Seminary* at the University's expense."

From early youth Dawid showed a great liking for books; he was contemplative, self-sufficient, did not take part in plays with his brothers and schoolmates. He was wrapped in himself, introverted, probably of schizoid nature. Those who knew him found him outwardly cool, even-tempered, possibly impersonal, proud of himself and of his work, and conscious of his mental power.

He was always an exponent of the school of experimental psychology. Accuracy was a characteristic feature of his thinking, and clarity, of his speech.

As a young scientist, during the International Educational Congress in Munich, in 1896, he called attention to the degeneration of the analytic school of psychology and pedagogics, the decided victory of the positivist school to the exclusion of spiritualism, telepathy, and mediumism. This passionate battle against the analytic school would indicate that, in spite of Dawid's acceptance of this experimental view, he does not lack interest in philosophy which would be expressed by a more indifferent manner. It shows rather a keen penetrating mind, searching for facts and disliking vague argumentation, and simultaneously needing a philosophy of life, with rather strongly suppressed metaphysical impulses. The following is proof of the emotionalism of this outwardly cool personality: "There were always things in the face of which I was unable to be quiet and indifferent, to restrain myself from a protest." In spite of this, his work as a whole, between 1881 and 1910, reveals the calm of an accurate investigator. He finds an explanation for the world in physicochemical phenomena. That which could not be experimented upon was not worth the effort of thought. The last four years of his life bear a totally different character. It was a period of exceptional shocks, suffering, breakdowns, and the development of the belief in the existence of a supernatural world. The cause of this change, seldom found in such minds, was the suicide of his wife whom he loved very dearly, but whom he failed to help in her mental conflicts and thus was unable to prevent her death. It is conceivable that schizoidal, introvert types, self-centered, outwardly indifferent, usually get more attached to their dear ones, and separation from them more often causes severe shocks and breakdowns, because of more frequent than normal exclusiveness of their feelings, their greater intensity, and the greater difficulty of adapting themselves to new conditions of life. Dawid's letters throw light on this period of crisis and struggle:

> I loved my wife deeply, she filled the greater part of my life, but I loved her also for myself, not for her. After the *catastrophe I became aware of it.* The pain of losing this most beloved one is inexpressible. It is a burning remorse that I did not do anything to save her, that for a series of years I led her on to this by my behavior... I always felt sure of myself, I was proud, hard, and a severe judge. Nothing existed before which I could bend, except material and social forces. And, behold, here was a power before which I felt crushed.... death awakened in me something like a new organ, the ability to see or realize certain things.
>
> All that was best and most beautiful in my life, all that *can be considered as happiness—I owe to my wife. I, myself* was not sufficiently aware of this before. Now the only *thing which is left to me is despair,* which is absolutely a deadly disease, only death is so terribly slow in coming. People will say that this is weakness. Perhaps it is, it depends upon the point of view. I only know that last year I learned more than during my previous life, and that I never possessed such a full knowledge of myself, the consciousness of the sense of life and duty.

The above quotations clearly show the change of tendencies caused by a shock. These tendencies, depending on the personality, sought another fulcrum and, led by the instinct of self-preservation, found it in the belief in the existence of spiritual life. According to Lukrec, Dawid's friend and biographer, there was in him "a deadly struggle between the empirist and the mystic, the Titan of exact science, demanding proofs and facts, and the despairingly lonesome, solitary man, wishing to believe in life hereafter and the possibility of a reunion with the beloved one he had lost." These struggles lasted years; it was accompanied by a characteristic symptom frequently found in deep mystics, the tendency to moral self-scourging, self-accusation, and asceticism. Dawid had no real sin behind this self-torment. Lukrec explains this as follows:

> This moral self-calumniation is a test, not of Dawid's moral value, but of his new spiritual state. To find a proper criterion to appreciate Dawid's value, we must seek it in his works and

> ideals, the highest ethical standards of his life, his disinterestedness, poverty, unshaken ceaseless defense of the weak and tormented, and his vigorous fight for scientific, social, and political principles and convictions.

His despair at the loss of his wife ruined him physically and completely exhausted him mentally. He gradually developed tuberculosis. Simultaneously with the weakening of the functions of his body, *the need of spiritual union with his wife grew through* paroxysms of pain, acuteness of intuition, sometimes hallucinations.

> Pain caught me with new strength. Walking along the street, I cried. One day, when I was in this state, I heard a voice: "Don't cry, Wladzio, it had to be. I was obliged to do it." These words were pronounced by myself, but, on the other hand, *as if against my will . . . . . . all at once the thought* came to me: Why—I can die, yes, I shall die. This idea made me very happy and from then on brought me relief. The first motive seemed to me to be the escape from pain, later, other feelings and motives of punishment and expiation accumulated around this decision.

In this newly developed mental attitude, idealism takes place of materialism; in psychologico-educational methods of work, intuition finds place beside the experiment. Transformation through *personal experiences, especially suffering, and the conscious, active* weakening and destruction of selfish impulses of an individual capable of intense spiritual life (spirit of sacrifice, charity, suffering) becomes the aim of education. Voluntarily accepted suffering plays a rôle of decisive importance in this process.

> In his desire to establish himself firmly in the reality of the spirit, man, within the limits of his possibilities, suppresses all that attached him to life up to that moment, first of all *his personal sensual feelings and needs.*
>
> Practice has, for a long time, taught ascetics that it is indispensable for them to repress the sex impulse in order to develop a higher spiritual-religious life. The strength of this impulse is then sublimated. This interdependence is proved in a way almost experimental by the quoted cases of Novalis and others, in which sensual love is transformed directly into spiritual love; the object of sexual feeling becomes one of religious cult.

> Suffering, endeavor, and abnegation are most closely connected with the *emancipation of the spirit.* Their mutual relation is that of cause and effect.
>
> I consider every suffering and voluntary renouncement as if *I were returning something I had previously taken unjustly* through selfishness, weakness, covetousness, through something in which there was guilt.
>
> We saw that suffering elevates man, ennobles his spirit. But this is only in cases of active suffering resulting from a *conscious will, an effort, a denial,* a *sacrifice* in the name of a higher ideal.
>
> I am afraid that I may lose the capacity for suffering, as this suffering keeps her alive; it seems to me, the moment I cease to suffer, she will die again—this time for good.

We see here that the need of suffering and its evaluation are caused by the firm belief that it is the only means of contact with the beloved person. Suffering which finds its expression in the feeling of guilt may be considered, on one hand, as the mark of *personality (introspection,* self-sufficiency, introversion), which always takes full and rather exaggerated responsibility for its actions: on the other hand, as the sign of the appearance of a new and strong complex coming to the fore with sudden and extraordinary force, causing in the person a feeling of dazzling, but also of sadness, that so strong a complex was hitherto suppressed and insignificant (the reality of spiritual life).

Essentially, suffering which is, so to speak, thrust upon one, accepted and considered as an indispensable condition for spiritual *life and for the satisfaction of the highest needs* (spiritual relationship with his wife) must be included in the philosophy of life of a thinker, must be exercised by an active personality and afterwards amplified to produce intense spiritual experiences. Hence arises the problem of sacrifice and death as the most intense suffering, and at the same time the condition for complete transition to spiritual life.

> *The deepest ultimate feature of mystical* life is the need, the hunger for sacrifice, in one form or another, partial or complete. The highest, most perfect sacrifice is death, and, as a matter of fact, from a certain point of view, one may say that the essence of mysticism, its guiding idea, is the process' *of partial dying, and its final word is—death.*

> Dying is not only a passive self-denial, but also a simultaneous active self-sacrifice. Each disinterested action, each sacrifice, endeavor, and effort made for others is a partial death, the giving up of some part of one's body.
>
> Courage is the state of mind of one who has either never learned to love life or was compelled to renounce it, and always thought that at any moment such a renouncement, planned and accepted in advance, might be fulfilled.
>
> Courage can be understood only as the state of mind of one who has risen beyond life, i.e., beyond organic and sensual life, beyond what is need and satisfaction, gain or loss, and which, therefore, is able to act in a manner contrary to his own interests and self-preservation.
>
> In the moral ecstasy which accompanies acts of sacrifice and heroism, the readiness for death is an obvious fact. Every act of courage is a decision of death.
>
> One must become indifferent to fame, to sensual pleasures and intellectual delights. We must lose them to conquer others. We must renounce everything that is good in life so that later it will become our property through effort, will, and contemplation.
>
> Why are people taught to live and not to die? The one who does not know how to die will not know how to live. To value life above all is to miss its purpose—such a life becomes an error, a toy of external forces.
>
> To be capable of these actions (heroism, sacrifice) we must agree to acknowledge death as such, accept it in advance and consider it as one of our most essential problems.

The idealization of his wife, the feeling of guilt in connection with her suicide, inclusion of suicide in his philosophy of life, and his own suicidal tendency are among the fundamental factors for his acceptance of the suicide, as a positive symptom, from a moral point of view.

It was chiefly a question of suicide as a punishment, a sacrifice, a means of reunion with the beloved person, an expression of void in life.

> In all great changes, moral crises, the idea of suicide nearly always arises—at least as one of the alternatives.
>
> Mystics disregard their bodies and senses, they yearn for death, conversions are often accompanied by thoughts of suicide.

Suicidal ideas usually arise when a struggle begins between complexes of opposing tendencies, neither of which prevails over the other, or when the difference is insignificant. The result is the destruction of both, neither of them being able to gain preponderance, thus making impossible the creation of one predominant complex, supported by several minor ones. As soon as one of the principal complexes gains distinct preponderance, the philosophy of life is *formed, peace ensues and the tendency to suicide subsides.*

> The tendency to suicide goes together with instability of personality, variability of states and moods.
>
> In order to take away his life, one has to stop being oneself and to become another personality. A split of personality must appear. This second person is beyond life, is transcendental, for, only that kind is able to oppose and counteract the empirical person. The impulse to suicide, the same as the impulse to heroic death in sacrifice, is the gaining of the sense of the transcendental being, its independence, its becoming active.
>
> *Man agrees to the amputation of an arm*, knowing that the other will carry the work. In the same manner, he resolves to meet a voluntary death because he knows that some other form will take the place of his ruined body.
>
> The will to die is a declaration of desire of future life.
>
> The faith in the life hereafter, in the world beyond, is a protest and a final victory of the instinct of life in all its symptoms over death, suffering, deception, which belong to "this world."
>
> Another world is opposed to this one, a world in which all is saved and preserved that gives life its value, and the highest of values—life itself. It is not only preserved but exalted, made perfect.

For types such as Dawid (introvert, self-sufficient, inclined to deep and exclusive affections), a new and quite different philosophy of life was the only way to hold on to life, the necessary solution of the instinct of self-preservation. In this manner he solved the impossibility of agreeing to the separation from his dear beloved, also the problem of the moral rôle of suffering and sacrifice, and besides found new sources of the maxim: "Love and death are the principal sources of individual knowledge."

Tolstoy

Tolstoy does not show such striking inclinations to self-mutilation as does Dostoyefsky. Nevertheless, a closer study of his works reveals distinctly the writer's self-mutilating tendencies and the deepest strata of his mentality. The factors causing Tolstoy's self-mutilating symptoms may be grouped as follows:

1. A sensual overexcitability, craving for pleasure, ability for introspection, sensitivity, and fear of yielding too easily to impulses.
2. A strong physique, a sense of abundant energy, an emotional excitability, a strong tendency to attach himself to individuals and to brood over the loss of dear ones.
3. A feeling of inferiority, guilt, and need of penitence, on one hand, and a desire of distinction, on the other.
4. Autoerotism, as well as certain homosexual traits.
5. The urge to create and a gradually developing sense of worthlessness of his own productions as his moral systems of life were becoming more complicated.
6. A need of self-penetration into his most hidden hypocritical feelings, tendencies, and actions.
7. A tendency to states of overexcitability and depression.
8. A conflict between his pride (innate and acquired through his environment) and the subconscious desire for humility derived from his mental attitude.

These factors will be described in their logical order on the basis of the writer's diary and memoirs, as well as of those works which reflect his personality to a greater degree. Tolstoy was naturally exhuberantly healthy, full of energy, which, unreleased in work, sought to escape in channels common to people of his class namely in sensual pleasures. The force of these physical demands and of their gratification was so strong that it made Tolstoy quite helpless, filled him with fear of yielding completely to these impulses. He feared his desires, yet his strong, healthy body derived contentment from these experiences. The smell of horses' sweat and the suffering of hunted animals intoxicated him. He excels in the description of war pictures, yet he is one of the greatest exponents of pacifism. We find in the majority of his works (*War and Peace, Anna Karenina, Power of Darkness, The Devil, Father Sergius*) meditations on the fatalistic influence of sexual impulses on man's life. They destroy man's personality, debase his character, and drag him down morally. Experiences of this kind lead him to subject himself to ascetic rigors. In his youth he enlisted in the army, in an attempt to suppress his low impulses by military discipline, only to return with a stronger desire to the sexual pleasures. The keener his sexual tendencies, the more arduous is the struggle to suppress them, which leads to his medieval ascetic attitude toward marriage.

He presented these experiences most distinctly in *The Kreuzer's Sonata* and in *Father Sergius.*

> The most disgusting is that, in theory, love is sublime and ideal, while in practice it is so swinish and abominable that the very thought of it provokes nausea and disgust.
>
> Sexual desire is always a torment, a terrible torment, which ought to be checked, not yielded to, as we do.
>
> It should be recognized that prostitutes who sell themselves for a short time are ordinarily looked upon with scorn, while women who sell themselves for a long time are usually respected.

Tolstoy strongly attached himself to his family and his dear ones, and from his earliest youth he suffered greatly through the death of his beloved mother and friends.

His excessive emotional sensitivity caused much stronger traumas than usual in such situations.

> I noticed a pale, yellow, transparent object; I could not believe it to be a face; but, gazing at it intently, I recognized the familiar beloved features. . . . Then only, I understood where the heavy odor came from, which together with incense, filled the whole room. The thought that this face, which a few days ago, was full of beauty, the face I loved better than anything else, could cause such fear revealed the bitter truth and brought me to genuine despair.

The ability to observe and urge for introspection as well as the power of plastic reproduction of events was the cause of strong emotions.

> The feelings of aversion and disgust which affected Nechludow grew stronger as he listened to the description of the decaying body, of the liquid oozing from the nostrils of the poisoned man, and of his protruding eyes.

The worship of health, strength, and physical beauty suffers here an exceptionally strong blow; the consciousness of transformation of beauty into decay, evoked by the sight of the dead body, produces a strong mental shock. The urge to investigate, to study each phenomenon exhaustively, produces interest in the problem of death. The more successful he was in life, the more frequently and deeply he thought of death as an inevitable end; an awe inspired by death transformed itself into a metaphysical fear. These meditations brought him to the idea of suicide (*The Death of Ivan Ilyitch*). He concealed articles with which he could put an end to his life when the moment arrived. Each succeeding death of his near ones increased this morbid state. His grandmother, his father, two brothers, and a son died. The instinct of self-preservation draws him away from the study of this problem for a short time, but at the occurrence of a new death he suffers a stronger blow than before.

"I wanted to show a smiling face, but at this moment my astonished eyes beheld the lid of a coffin leaning against my door."

He cannot tolerate the contrast of the coexistence of despair and joy, the hypocrisy of nature, smiling at death. "The birds twittered in the grove about great happiness, as though enchanted" (*Three Deaths*). To the tragedy of the enigma of death is added the consciousness of mankind's egotistical attitude to it.

"The very fact of the death of close ones always produced in everyone the feeling of joy—that it was he who was dead and not I" (*The Death of Ivan Ilyitch*). The need of adjusting oneself very quickly to death causes a feverish self-tormenting inquiry into all of its phenomena and peculiarities. Out of this internal struggle alone rises the question of immortality, caused probably by the instinct of self-preservation. The most desirable form of such immortality would be the reincarnation of the whole physical being. Tolstoy felt, however, that this was impossible (*Impressions of the Decaying Body*).

The peaceful death of plain people who depart from life without despair, having fulfilled their destiny, becomes one of the sources of calmness. "She quit life without regret, she was not afraid of death, accepted it as a favor or joy; how often these words are spoken; how rarely they are anything but an empty phrase. In this earthly life she accomplished a great thing: she died without fear or regret." These intense sensations gradually reached the climax and produced a more tolerant attitude to the question. Tolstoy learned slowly to adapt himself to the thought of death, included it in his philosophy of life, and began his notes with E. B. J. (*esli budu jit*: if I shall live).

The death of his relatives strengthened this attitude. "It was at Petia's (his son) burial that, for the first time, I began to wonder where I shall be buried."

In this period of involution, a slight loss of strength and decrease of sexual desire were compensated by the search for faith and spiritual immortality, regardless of physical death. For a long time Tolstoy could not visualize the value of spiritual immortality alone. Thus, more and more frequently and clearly he began to see the possibility of acquiring immortality by spiritual development and sensual suppressions. "Whoever sees the meaning of life in self-perfection, cannot believe in death, nor that such perfection can be interrupted."

One of the main reasons for Tolstoy's self-torment was the discord between his physical ugliness and the desire to be popular and in the limelight, between timidity and shyness, on one hand, and the need to play an important rôle in the world, on the other. Zweig gives the following description of his physical appearance:

> *Rough-hewn like wood split for firing are the cross-beams* of the forehead surmounting the little windows, the tiny eyes. The skin, like the outer surface of a wattle-and-dab cottage, is *of clay, is greasy looking and lustreless. In the middle of the* full quadrangle of the face, we see a nose with gaping bestial nostrils, a nose that is broad and pulpy as if flattened by a blow from a fist. Behind untidy wisps of hair project misshapen flapping ears. Between the hollowed cheeks lies a thick-lipped surly mouth. The general effect is inharmonious, rugged, ordinary, *verging on the coarse.*

Tolstoy himself says he had "the most ordinary, vulgar, and ugly features."

> I didn't even have anything noble; on the contrary, my face was common, just as my large feet looked like those of a peasant. At the time, I felt very much ashamed of it.

In another place he says of himself, "I, a boy with a flat nose and hair sticking up on my head." He wanted to dance, but did not know how; he wanted to play a rôle in society, but did not succeed. In situations demanding quick reactions, he reacted too late. He envied his brother the ease with which he approached girls and kissed them, whereas he was unable to do it although he desired it. It hurt him that he had to play a secondary rôle in society, that in games and dances he always came out last.

All this made him irritable; he felt the least annoyance in the most exaggerated manner. Every punishment humiliated him too deeply. When his tutor locked him up, he became hysterical, felt sure that nobody loved him, and meditated on God's injustice. Many a time, as a reaction to vexations, he would imagine his injurer dead. "When Dad called me a wretch, I hated him for a long time and wished his death." He reacted to praise in the same exaggerated fashion. "Praise acts so powerfully, not only on emotions, but also on the mind of man, that under its pleasant influence I became twice as wise." The feeling of humiliation, together with his ugliness and bashfulness, sought compensation in the fields in which he could come to the foreground in his imagination. "I was too sensitive and ambitious to be reconciled with my fate. I forced myself to despise the pleasures procured through the possession of a good-looking face. I made a great effort to find delight in my proud isolation." He wanted to become the greatest athlete in the world, and in view of this went in for sports. He wanted to be the greatest scientist in Russia and even in Europe. To find an outlet for mental strain based on his feeling of inferiority and great sensitiveness, he sought annoyances and irritations to free himself of this state. "I expected with joy the moment when they would lead us out (of a first rate restaurant to which Tolstoy had brought a poor musician) and it would at last be possible to give way to my anger." The desire to distinguish himself sometimes took the form of self-torment in his imagination: "It would be better for me if I were a criminal, then, there would be a kind of consoling morbid glory in my despair."

The feeling of inferiority, of imperfection and of bashfulness produced in him a feeling of guilt, dislike, and hatred of certain of his own features, the need of sacrifice, torment, and destruction of certain of his own complexes, and the desire of working toward self-perfection. He understood that his feeling of inferiority and his ugliness might bring about compensation in some valuable form, that *suffering* growing out of such a background is of great importance for spiritual perfection.

> Yesterday I thought that if my nose were deformed, it would be an incentive toward moral perfection. I nearly felt like experiencing this affliction which I called misfortune, but which would make suicide justifiable.

Great introspection, an obtrusive desire to examine every matter thoroughly, and taking this as a basis for his principles of behavior, caused a strong tendency to self-torment after he had attained the consciousness of his unworthiness, of his sin and guilt. Even in his youth this led him to seek self-perfection through suffering, to a sacrifice of his needs, of his selfish impulses and comforts.

> *The man who acquires the habit of suffering must be happy.* To this end, to harden myself to pain, I would hold heavy scientific books at arm's length for five minutes, or go to the closet and scourge myself till I had tears in my eyes.

In search of punishment he fasts, goes on pilgrimages to cloisters, refuses himself many comforts to which he is accustomed, and above all indulges in moral self-scourging.

> I am guilty of all sorts of disgraceful sins: I lied, plundered *what belonged to others, committed adultery and all kinds of* brutish acts, I used to get drunk; I had every possible crime on my conscience. At that time I began to write, out of vanity and desire of gain; pride pushed me to it.

The violence of the passionate struggle is a proof of the lack of harmony and peace of mind in Tolstoy.

The abolition of some of his characteristics must also involve the destruction of the causes of an excessive attachment to physical life, to pleasures which include doing wrong to others. This produces the tendency to get rid of property. The idea of distributing his land and running away from people of his social standing (Nechludow attempted to marry a prostitute) and voluntary self-imposed realization of his convictions. From childhood on to old age, there is an ever growing tendency toward self-sacrifice for the sake of others. In his youth, he wants to sacrifice his love for Marusia (his first love for a servant), for her happiness and that of the man she loves, he wants to look for people who need his help; to do without servants, to sell the carriage and to distribute the money to the poor; at a mature age, he wants to sacrifice fame as a writer (he refused the Nobel prize), honors, and land. All this, as an expression of his craving for reform, was based on a feeling of guilt: "Now he understood that the only means of deliverance from evil from which people perish is the obliteration of their guilt in their own selves, that everyone should blame only himself and not others."

Besides this, certain slightly marked autoerotic and homosexual features were one of the reasons for the lack of mental balance between the opposing tendencies. Admiration of his own body, even in his childhood and adolescence, strong egocentricity which he could restrain but with difficulty, would be a proof of the former, whereas certain tender sentimental feelings for some of his schoolfellows and friends (*Serge* in his memoirs of childhood) would suggest arguments for his possessing the latter, although to a lesser degree.

One of the more important causes of unrest and torture in Tolstoy was the contrast of his two halves: the artist and the moralist. As an artist he was above all a naturalist, an impressionist, a genius in reproducing nature's life in its most varied forms, especially physical life. As a moralist, he considered the spirit as the only indestructible substance which develops more and more with the suppression of sensual life. Nearly all forms of art, outside of some works designed for special moments (religious music) were to Tolstoy harmful to spiritual perfection, because they excited passions—particularly the imagination. "Everybody knows that most adulteries are committed under the influence created by these arts—especially music."

"How could anyone who feels like it be permitted to hypnotize people and do whatever he pleases with them. And worse still—when the hypnotizer happens to be any kind of rascal."

Tolstoy's dislike of art grew in proportion to his dread of its power over him, of the too strong impression it made on him, as under its influence he would forget all his moral principles. Music affected him to tears.

A great psychological penetration, a passion for pleasure, as well as for the struggle against it, an inclination to probe himself, a strong and unconditional acceptance of moral principles, produced a tendency to ruthless unmasking of all falsehood, lies, and appearances, chiefly his own. He was tormented by the realization of the *inadequacy of means of carrying* his convictions into effect, and looked with suspicion on his former ideas as to who is "*comme il faut.*" He was subject to states of emotional excitement, sometimes bordering on that of ecstasy, to euphoria followed by a state of depression, usually of short duration. This variability of moods is tied up with a restless dissatisfaction and a feeling of unfulfillment. One of the reasons for unrest and dissatisfaction with himself was *the contradiction existing* between his proud, aristocratic carriage, his desire to command, and his craving for humility derived from his philosophy of life. Violence, authoritativeness, determined views, when coming in contact with people, the practical inability to adapt himself to the masses, and, on the other hand, awareness of the morality of people of his class far inferior to that of simple folks. Spontaneity of feeling, attachment, and faithfulness were qualities he found more often among the latter. Inclined somewhat to being demonstrative and decorative, he expressed his desire for simplicity and humility, among other things, by wearing a peasant's shirt, learning how to make boots, ploughing for a short while, drinking kvas, and so on. He was unable, however, to get in direct touch with the life of peasants, to know them more intimately, to establish a closer contact. This caused an inclination to self-criticism, pangs of conscience, and a dislike for half-hearted solutions.

All the mentioned complexes are only examples of the lack of mental balance of Tolstoy's personality. The vitality of his nature caused constant struggles between these opposing tendencies whose heterogeneous interplay would be impossible to trace because of their being *so numerous and* complicated. Their struggle caused shiftings, subduing, or permanent suppression. The suppression of some of them and arising or awakening of others could produce the combination of pleasant and disagreeable feelings (disappearance and birth). Symptoms of this phenomenon can be found in profusion on nearly every page of his works:

> But in spite of this, or perhaps just because of this, some unrestrainable power forced me, *against my will,* to politeness and cordiality toward him.

> I lived through some sublime, incomprehensible sweet and, at the same time, sad moments of delight.
>
> The very consciousness of my position (consciousness of his wife's betrayal) filled me with joy (intoxication with his own humiliation).
>
> The feeling of humility—it made his heart bleed with joy and pain at the same time.
>
> Nechludow felt in himself the voices of two people; one of them called for happiness which would also involve others, the other desired his own pleasure, even at the expense of his dear ones . . . the latter man-beast developed now in Nechludow and vanquished the other—the spiritual one.

Those opposing tendencies given the test of life kept on causing new complications and producing actions which confused them still more.

He struggled against hypocrisy and maintained that words without acts do not mean much, but he himself, for many years, was unable to act according to his principles and carried them into effect only so far as appearances were concerned (outward mania for peasant life), because he did not have the strength to break up with his family. He tended toward modesty and simplicity, but invariably led the life of a rich man; he wanted to distribute his land among peasants, but fear of his wife, threatening suicide, and of family conflicts prevented him from doing so. He detested his creative art, hated music, and yet rested when he gave way to them. He considered the body as a center of evil, but it was inexpressibly difficult for him to free himself of its excessive influence on his emotional state, his thoughts, and actions. All his life long he fought against the fear of death which tormented him nearly to his last days; he admired people who died quietly, and, in his older years, felt an unfulfilled desire for life. He wanted to become accustomed to the idea of death, to consider it as a means of freeing himself of earthly life, but this desire remained too distant an aim and became real only in the last months of his life.

"The whole life of a man who desires death would be a constant drawing nearer to his aim, and finally its becoming true."

10. THE RELATION BETWEEN SELF-MUTILATION AND HETEROMUTILATION

Weininger betrayed a tendency to mutilate himself as well as to torture others. In the peremptory, ardent analysis of the most degrading traits of woman and the tendency to extend to woman in general his exaggerated subjective observations, we see him delighted with his *theory of denial and hatred.* Here are a few examples of the original statement by Weininger concerning his theory:

> I maintain that there is no mother to whom it could cause only pain if a stranger, though with quite base intentions and vile calculations, desires her daughter and seduces her, or ..... A man is not interested in the nudeness of another man, while *every woman in her own thoughts lays* bare every other woman, thus proving exactly the common general shamelessness of her sex (80).

This hatred, *rather more theoretical than practical*, arose in Weininger in the last month of his life, or at least was intensified, on the one hand, perhaps by the influence of unpleasant personal experiences, and, on the other hand, by the influence of an ever growing conviction of the truth of his theory. Hating and struggling against his sensuality, he combatted and hated it outwardly as symbolic of the woman in himself. The difficulty of the struggle *increased his excitability and hatred. As a reason for his suicide* Weininger gives the need of killing himself in order not to kill others. In accordance with the above, killing himself would be destroying a separate entity; killing another, however, would be the destruction of his own hated tendencies by the destruction of these tendencies in others. Weininger presents this problem as follows: "He who kills himself, kills simultaneously the whole world, and he who murders another, commits by this act, the greatest crime in that he murders himself in the one who is murdered."

We find many a time, as a seemingly inexplicable fact, one-sided and mutual aversion and even hatred among individuals of similar mental and physical structure. Let us consider the case of *W*, an alcoholic, showing nervousness, excitability, and conflicting tendencies towards explosiveness and reticence. Moreover, in childhood, he showed signs of somnambulism, restless sleep, and nightmares. At first, *W* showed dislike, then hatred, for his 12-year-old son who possessed a character and physical build, and had certain psychopathic traits, similar to his own. *W* frequently expressed hatred for his son by torturing him mentally and by cruel beatings. He liked and treated his daughter quite well despite her striking peculiarities. This fact might be explained by the action of an unknown agent or by the influence of greater affection for the child of opposite sex. However, such cases are very frequent, and cases where we find hatred of the child of similar mental structure and love of the other of the same sex but of different mentality exclude such an interpretation. I think that a similar mechanism may be posited in regard to Stavrogin's hatred of Verchoviensky (from *Devils* by Dostoyefsky). Stavrogin hated in Verchoviensky the vileness, to some extent similar to his own, and the actions arising from it committed for the sake of acting, for the delight of doing wrong. It is a known fact that we do not like people who have traits similar to those of our own which are unpleasant to us in one respect or another or at one time or another. They irritate us too frequently and we think of them or others remind us of them too frequently for us to be able to accept with calmness their somewhat external objectification. Hating these characteristics in ourselves, we bear them still less in others. On the other hand, it is easier to find an outlet for an aversion or hatred to our own traits when we notice them in our dear ones. Hence the frequently met torturing of others, as an expression of mutilation of ourselves. Such an explanation of the existing correlation between auto- and heteromutilation allows us to understand in many cases the pleasure and delight felt by people who are humiliated, derided, and who feel the same pleasure in torturing others, often in a most refined way.

Many a time it is difficult to find in an object of torture a similarity to the traits of the torturer, the traits he hates. Here we may consider the case of little Matrosha (from Dostoyefsky's *Devils*), with a "freckled, common face and, at the same time, very childish and unbelievably gentle," whom Stavrogin purposely exposed to chastisement by her mother and whose soul he poisoned by awakening her sexual feelings. He did this perhaps to ascertain whether he would be able, by damaging an innocent one, to awaken clearly in himself a moral sensitivity and a consciousness of his moral structure. Stavrogin, by artifice, brings her to sin, fills her little head with pangs of conscience, and leads her to suicide. He anticipates her act with restlessness and delight, and makes no effort to prevent it. The destruction of a sympathetic feeling for Matrosha, his leading her to suicide and awaiting it in a state of strong tension, testifies to an obsessive need for the finding of the strongest agents for liberation from a state of restlessness. Besides this deed, the repression of an immediate reaction to the insulting behavior of other people (a slap in the face) was in many cases the means of probing the limit of his vileness, which caused him a "delight superseding everything." We shall understand it more clearly on the basis of Stavrogin's self-analysis, included in the so-called "document" in *Devils*.

> As often in my life as I happened to be in a disgraceful, humiliating, vile and especially ridiculous situation, I felt, parallel with an unbelievable anger, an unusual delight. The same occurred in moments of crime and danger. Invariably, while committing a theft, I would be intoxicated by the depth of my downfall. Not only the baseness gave me pleasure (in this respect I always had a sound mind) but also the tormenting feeling of infamy. Whenever I stood as a target waiting for the shot of my adversary, the same degrading and ecstatic feeling grew in me. I shall confess, that I was always looking for this feeling, since I did not know other stronger impressions. When I was slapped in the face (and this happened in my life twice) I again felt the same in spite of the terrible anger. If I controlled the anger the delight superseded anything imaginable.

Stavrogin had frequent possibilities for outbursts of anger and for the humiliation of others, but seldom did he have a chance to experience great humiliation and derision. Hence, the experiencing of the latter would require a much greater tension. Mental overexcitability, and a tendency to psychopathic outbursts are released more easily and strongly by the action of the strongest agents. Therefore the search for humiliating and derisive situations becomes more comprehensible. Stavrogin provoked and insulted others in order to elicit an insult and abasement of himself. He illustrates a continuous inner struggle between the feeling of anger, aggression, and of the anger of others. In cases where it was difficult to become *an object of aggression*, Stavrogin found the object and subject in himself. He was the perpetrator of mutilation, and its victim. This is illustrated by a passage from the "document":

> I took out my anger on whomever I could. On one such occasion, not without any reason, the thought seized me to mutilate my own *life, but in a most ludicrous manner. For a* year already I had been thinking of suicide, but now something better occurred to me. One day, looking at lame Mary, Lebedkin's sister, who served here and there and who at that time was not yet insane but simply an ecstatic idiot and madly in love with me (my companions found it out), I decided to marry her. The idea of marriage with such a despised creature irritated my nerves. It was hard to imagine anything more monstrous. Anyway, I did not marry her only because of a wager on champagne after a drunken dinner.

This passage calls our attention once more to the close connection of self-mutilation and suicide with the torturing of others, and secondly to the great facility by which the focus of anger and aggression is shifted from the object in the outside world to certain personal groups of tendencies. Admission of the hypothesis that *heteromutilation is often a realization of a need of torturing* because of certain of one's own traits facilitates the analysis of many types of similar behavior. We are not free to evaluate, in regard to the case analyzed above and in other similar cases, the other factors which can influence the realization of auto- and heteromutilating tendencies. Some of these factors are the needs of conduct against *the dominating tendencies* in order to experience pleasure; the need of self-observation which is combined with new and very irritating experiences; strong impulsiveness; tendencies to obsessions and compulsions; tendencies to periodic emotional tension expressing itself in successive states of excitation and depression, followed by the need of submission to the action of strong agents frequently of opposite natures for obtaining a mental outlet. All of these last-named tendencies may intensify the auto- or heteromutilating tendency, and in many cases may constitute the basis predisposing to the development of the latter.

The scale of intensity and of variability of the auto- or heteromutilating tendencies depends on many factors. First, it depends on the complexity of the mental structure; secondly on the variety of experiences; lastly, on sex and age. Here is another example of Dostoyefsky's rich collection of types presenting a coexistence of auto- and heteromutilating tendencies, but in a different direction and application than in the previous example. The 14-year-old Nellie *(Insulted and Injured)*, abused by life, in whom, in a less complicated way because she is childish and without an admixture of criminal tendencies, appears a tendency to an auto- and heteromutilation under the influence of the same incentive. Here are her words:

> They will scold me, and I purposely shall keep quiet, they will beat me, and I shall keep quiet and quietly let them beat. I shall not burst into tears for anything in the world. And they will *feel* angrier, because I don't cry. . . .

And, referring to another experience:

> Let her (daughter) leave him for good. Better let her beg, let him see his daughter begging, and suffer.

The knowledge that moral and physical pain is not the exclusive possession of one, but a property of all, brings alleviation to suffering. Therefore, suffering people do not tolerate contentment or joy near them. Frequently the despair may be assuaged by meeting a greater misery in others; in a suffering man, the decrease of pain may occur by its real or imagined causing of pain in others. The injury often produces an aversion and sometimes a hatred to the uninjured. Knowledge of a lack of guilt (as in the case of Nellie) intensifies this state, and self-mutilation may be the result of the desire to intensify the imposed pain in order to manifest to others the guilt by blaming everybody for the injury. On the other hand, a protracted state of moral pain may be replaced by a gradually increasing euphoria or a certain kind of mental anaesthesia produced by an excessive increase of pain and destroying the ability to feel it.

To torture others by self-mutilation may lead to a condition converse of the above. In children and adolescents, too much pampered and spoiled, overexcitable, and introverted, we find the symptoms of nervous dramatization, as described in the third chapter, appearing with the infliction of injury by more or less conscious self-mutilation in order to cause pain to parents and guardians. This is one form of torturing others by self-mutilation.

In Weininger's and Stavrogin's examples we touched the problem of the association of criminal with suicidal tendencies. It would seem *at first hand, that here is complete independence*, *just as there* seemed to be in the relation of self-mutilation with heteromutilation. In fact, it is not so simple as in the latter case. Frequently murder, with suicides following, give us examples of this relation. For instance, we often find the murder of a deceiver and then suicide of the murderer. What is the most convincing explanation of this process? A whole complex of positive tendencies constituting the mental peculiarities of a given individual changes its quality more or less quickly, and this change is somehow imposed on him. Despite the *experience of delight in suffering, many pathological individuals strive* at the end to destroy what is unpleasant, and the degree of their striving depends on the strength of the group of conflicting tendencies and the speed of action of the unpleasant agent. If the complex of denied tendencies is at the given moment a dominating one in the mentality of the individual, its annihilation produces a striving for the destruction of the personality whose most important component has lost its *raison d'être*. However, besides the desire for self-destruction, there arises simultaneously the desire to destroy the object of the disowned impulse, that object which forms a part of the mentality of the individual, and which is symbolized in the external object. There arises a need to destroy both inseparable components: the object and the subject. The self-murder is in relation to himself a murderer; he kills in himself a complex of the conflicting and dominating tendencies.

The phenomenon of the suicide pact throws light on this problem. It often occurs that a man, who in the beginning agrees to be murdered, later opposes the murder with all the strength of the instinct of self-preservation. This opposition causes aggressiveness on the part of the other member of the agreement. We have in this case complete disregard of the wish to live. The self-murderer decided about the life of his companion as well as of his own; he includes this life in the components of his own mentality which he sentenced to die.

These facts, concerning sometimes even the élite of the intellectuals, testify to the consideration of the one sentenced to death as a projection of one's own mentality. This is illustrated by the case of *M M*, a high official who killed his wife and sons (the sons were 12 and 16 years old) as they fled his shots. *M M* obtained his high position through his own work and he was liked and respected by his friends and subordinates. For some time before the tragic *event he changed his occupation often and showed a lack of method in* his work. The following is a passage of his diary, found after his death:

> Is life worth living? Whoever decides to free himself from the painful prison of life resembles a bird which, after spending the winter in a peasant's hovel, lights for the first time before the window and starts on his flight toward the sun..... *What a delight to be free, never to feel the cold* or the hunger, not to become ill, not to fear skepticism, or terror, not to bear the human beast, not to tolerate violence; to forget the horrors of prostitution, not to see pampered parasites any more, not to observe the sneering and cynical smiles. The reaching of this state of perfect happiness is entirely within our power. We can transform the tragic illusion of life into a happy existence of absolute insensibility, without effort, without longer suffering and without tiresome struggle. Let us not be afraid of death, let us spread its cult, let us create in ourselves a state of striving *for* freedom, for eternal silence (36).

While reading this, we get the impression that this passage is the voice of a deeply thinking man, sensitive to the most unpleasant sides of life, a pessimist who was at the time exceedingly depressed. The fact, however, of imposing death on his wife and children remains in conflict with the mentioned aversion for the toleration of violence. For the murdered ones, fleeing in terror from the bullets, the submission to death was not "without effort, without longer suffering and without tiresome struggle." It may be assumed that, at the time of the murder, the author of the diary was in a state of melancholy, under the influence of the already existing tendencies to destroy not only himself but others also. In many people showing suicidal tendencies, one may observe the coexistence of a tendency to kill others. Therefore, Talian's aphorism that "He does not kill himself who did not want to kill another, or at least did not wish another to die" is somewhat justified.

According to Freud, in each case of suicide one can find some desire to kill the one with whom the suicide identified himself. Many phantasies about death, fears of death, and the feeling of impending death, found in neuroses, betray a mechanism which may be expressed as follows: one wished somebody to die, one is this somebody (most frequently the father), and one is dead (need of punishment). Wishing someone or oneself to die may be the expression of the feeling that only death can solve the conflict (34). The subjects of the dreams and phantasies of people showing suicidal attempts often indicate the existence of destructive tendencies, containing cosmic catastrophes, epidemics, ravaging of humanity, or similar events. One seldom finds in creatures of a pessimistic philosophy a knowledge of the sources of their personal pessimistic outlook on the world. On the contrary, there exists a striving toward objectivity of their tendencies in the form of a philosophic system. Suicide as a logical conclusion of a worldly outlook associated itself with the need to impose this outlook on others and to destroy them. Schopenhauer's philosophy of denial, based on cosmic arguments concerning the social and individual vital uselessness of life, ought to lead to suicide. According to Schopenhauer each of us would give up living if committing suicide would not be associated with unpleasant experiences. In this view we see a struggle of conflicting tendencies in Schopenhauer himself. It is an erroneous statement that each of us would most likely end life if this end were not connected with unpleasant experiences. It should rather be assumed that Schopenhauer wanted his wish to die to be more generalized. But this was not so, and hence the intensification of his aversion for society, turning into hatred, perhaps motivated by the fact that he felt in himself what he despised in others, namely, the very strong wish to live, the force of inexhaustible instincts which made him enjoy in his later years the spending of his works among the despised society. The extreme conflict between the mental and the sensual needs, the increasing suppression of the wish to live, and the surrender to this wish were the basis of the state of overexcitability and of states of anxiety and aggression in literary creations as well as in life, in the form of irony, disdain, and hatred directed toward men in general.

This was intensified perhaps by the fact that logically the hatred should have been directed primarily toward himself, which was difficult on account of the presence of a greater wish that he live rather than the others. Therefore, the hatred was projected outwardly.

These projections of hatred on society, in association with fancies of destruction, are frequent, and appear coupled with various forms of psychopathy but having many interrelations. We often observe the easy commission of suicide in murderers or in people contemplating murder. The history of the Russian anarchism and nihilism supplies us in this respect with many facts of the frequent occurrence of murder followed by suicide. We find quite often in criminals, killers either without scruples or with a certain feeling of pleasure, a great degree of emotional insensibility when learning of their sentence to death or during their execution. Destructive tendencies, which in execution have their realization through destroying the subject of such feeling, play a rôle. Such or another degree of mental disintegration, usually associated with the struggle of opposite tendencies, is to some extent an explanation. Some light is thrown on the relation between suicide and murder by their statistical relation in different countries or periods of time, which cannot, however, give the expected conclusions on account of the scarcity and the unsystematic arrangement of the data. As an example we submit the figures of H. Denis (15) concerning suicides and murders in Belgium.

TABLE 1

	Per 1,000,000 inhabitants	
	Murders	*Suicides*
1870-1874	15.6	69
1875-1879	17.0	83
1880-1884	17.7	103
1885-1889	15.2	117
1890-1894	16.3	127
1895-1899	16.5	119
1900	18.6	117
1901	19.7	126

Similar deductions from these observations are made again by Federn:

> Algolania in its strict meaning arises first of all in people in whom pain is associated with sexual impression. This impression may be so strong that the co-existing pain loses its unpleasant character and colors only qualitatively this sexual experience.

Nevertheless, the observed cases point to the frequent lack of apparent organic irritations. In these cases, it may be assumed that the exciting factor may be a certain functional disorder of the sex organs, for instance, in early or late maturity or what we call "childish paradoxism," and in the opposite state, infantilism. In the first case we deal with the exaggerated excitability of the sexual instinct frequently associated with an exceptionally strong activity of the sex glands; in the second, we are concerned with an accompanying mental overexcitability caused by the protraction of the maturing period, and most frequently connected with so-called sexual psychoneurasthenia, states of anxiety and shame which often play a part in determining masochistic tendencies. Besides the above factors, an important rôle is played by the sex of the subject on which the above-quoted agents act selectively. We have already stated that sadism is more often met with in men, masochism in women or in men with certain feminine or childish traits. This is associated with man's sexual activity and woman's passivity. Certain investigators, like Sadger, point to the importance of the sexual dermal excitability in masochists. This is in accordance with the observed facts of the greater dermal excitability of the male masochists than in normal cases. We presented as an example of masochism the case of Alfred de Musset who showed many feminine traits and some mental infantilism. The tendency to masochism in J. J. Rousseau, who showed many infantile traits, is also known.

A man with a tendency to masochism seeks most frequently the type of woman who would complete his weakened masculine traits. To a certain degree he resigns his independence to her influence and designs. We see a strong analogy between the mechanism governing the masochistic complex and the mechanism of the broader group of these phenomena, i.e., with mental and physical self-mutilation. In both states, a strong part is played by mental and physical irritation, strengthened by the tendency to obsessional thoughts, feelings, and impulses. In the one and in the other we observe conflicting systems of tendencies (male masochists, female sado-masochists). These states most frequently develop on a neuropsychopathic basis, marked by disorders in the system of tendencies and frequently by a lack of arrangement of complexes of tendencies and the submission of them to a dominating one.

Sadism, as well as masochism, is a normal symptom when present in a slight degree. Sadistic tendencies should be considered as a result, on the one hand, of cruelty and of masculine activity, and, on the other, of a too intensive sexual excitement. We have already spoken of the rôle of sexual excitement and of the relation of activity and passivity in this state. Cruelty is founded on the desire to inflict suffering on others, whereby the perpetrator feels pleasure in causing suffering. A sadist feels the same, but that pleasure possesses a sexual color. Sadism, as well as heteromutilation, is connected with a destructive tendency. The cruelty of a sadist will most frequently, but not exclusively, involve sex. Guy de Maupassant, possessing sado-masochistic tendencies, said of his cane: "The marvelous instrument, with the aid of which I already killed twenty dogs" (37). Sadists very frequently come from families whose members showed strong tendencies to cruelty and aggression, and also to masochism.

Many of the factors determining sadism by sexual excitement act as in masochism (balanitis, phimosis). Adler calls attention, justly, to the significance of punishment, beatings, and states of fear in the feeling of inferiority and in its compensation in the form of aggression, in the form of a "will for power," which may, among other things, express itself in a tendency to sadism. Impulses of aggression, arising as a consequence of suppressed instincts, either sexual or otherwise, may also lead to sadism. Sometimes a too intensive stifling of different impulses and the long lasting realization of self-mutilating tendencies in man may cause a protest of the dormant sadistic impulses. We suppose that such a mechanism was active in many Inquisitors whose poorly realized need of torturing others appeared in the most convenient and sanctioned form of inflicting tortures as if coming by order of the existing religious heads. The difficulties in the realization of many natural impulses, external and internal conflicts, cause in many anger and aversion to indications of the more natural consummation of these impulses in others. Joy, naturalness, signs of harmony in a given group cause in such people hatred, anger, and a need to oppress others. This may be noticed very frequently among teachers, educators, and monastic authorities in their treatment of pupils or wards. It begins, most frequently, by an unconscious heteromutilating activity with a sadistic tinge in relation to people who symbolize groups of tendencies repressed or destroyed in the torturer. All the investigators who inquire into this problem point to the association of sadism with masochism. Freud sees in Dostoyefsky an impulse to destruction directed against himself, expressing itself in masochistic tendencies and feeling of guilt. He sees in him also definite sadistic traits: excitability, quarrelsomeness, intolerance even in relation to the beloved ones, finding pleasure in humiliating others, etc., (34). Such an explanation is in accordance with Freud's view of the structure of the majority of perversions, which are, according to him, an alliance between two opposed impulses (68). Sadism, as well as masochism, according to Freud, is a frequent derivative of the Oedipus complex, and the phantasy of being beaten, punished, and humiliated. Freud thinks that masochism is not a primitive impulse, but arises from sadism which became reversed and directed against oneself (shifting from the object to the ego). The phantasies of being beaten, arising as the basis of masochism, have frequently the same meaning as being loved, in the genital sense (32). Phantasies on the subject of being beaten and castration are found, according to Freud, in erotogenic masochism. In the so-called moral masochism we deal with the sexualization of the super-ego, which becomes the sadistic factor in relation to the ego. The third and simplest form of masochism is the feminine masochism, seen in men either of infantile type or those who betray certain feminine traits (30).

Tendencies of both kinds often coexist in the same individual. Sometimes sadistic impulses arise in a given person in relation to one sex, and the masochistic in relation to another. Federn describes cases in which he observed changes of the sadistic into masochistic tendencies during treatment. We observed a case of sadism in a man in relation to his son, and of masochism in relation to his wife, as well as a case where a mother was sadistic in regard to her son, and masochistic in her relation to her husband. Sadistic interest may be aroused by a potentially existing masochistic tendency. Let us take, for example, the Marquis de Sade, who, in his works, along with the description of sadism, gave descriptions of all kinds of sexual perversions, with such a knowledge of the subject and such a penetration into the mechanism of the particular perversions and of the emotional states associated with them that we may suppose that he possessed complicated sexual perversion, passing from one into another. Furthermore, his biographers submit proofs concerning the existence in him of some equal perversions besides sadism. Torturing others combines itself in Marquis de Sade (23) with the need to torture himself. The wish to die and to destroy himself (nirvana principle) took in him a peculiar form, namely, a wish that the earth over his grave appear as if it had never been cut and that the spot be forgotten.

A sado-masochistic complex of weaker intensity, developing itself in a person of a subtle and romantic disposition, is seen in the life of Alfred de Musset (61). It is evident in his *Confessions of a Child of the Century* and from the poet's correspondence. On the one hand, we observe physical and mental self-mutilation frequently with sexual excitation. On the other hand, we read of mental mistreatment of his beloved. Paying her homage turned after a few minutes into the infliction of a deep moral pain. The passage from weeping, praying, and adoration to swearing and mistreatment points, in accordance with the above views, to the existence of a sado-masochistic complex. This is demonstrated by the following passage from *Confessions of a Child of the Century:*

> After the end of these scenes where my mind exhausted itself in tortures and rent my heart, in turn accusing and sneering, but always with an urge to suffering and to return to the past,—after the end of it, an unknown love, an exaltation pushed to excess, ordered me to treat my beloved like an idol, like a goddess. . . . A short while after accusing her, I was on my knees. If I did not accuse her, I begged for forgiveness, when I did not sneer, I cried.

That lack of a distinct predominance of activity over passivity, of the masculine mental traits over the feminine ones, developed on a neuropathic basis into a sado-masochistic form with the predominance of masochism into a special form of Dugas' "mental instability."

We showed above that the relation of sadism and masochism in the same individual may differ, with more or less great predominance of one or the other. We had under observation a 17-year-old student, *W*, who presented himself with a request for a medico-psychological qualification for a military training school. From the conversation it was found that he was subject to frequent fainting attacks on observation of his own slightest wound or "a drop of blood." He was indifferent to the sight of blood or a wound in others, and very frequently purposely looked forward to seeing wounds and blood. He inspected with pleasure the murdered or the dead. In phantasies and dreams he imagined a field of battle covered with dead troops. He was then strongly sexually excited. No disorders of heart and vascular system were found. From further observation and conversation it was found that *W* began to masturbate a few years before he matured; he showed a tendency to onychophagia, laceration of the skin, especially of the nipples which, incidentally, became enlarged under the influence of their mutilation and frequent excitation. Besides this, he was obtrusive and agressive in his relations with his family. This indicates the presence in *W* of the sado-masochistic complex, with predominance of the first. His dermal hyperexcitability and irritation of the nipples, associated with pleasure, testify to the presence of a masochistic complex.

12. EDUCO-THERAPEUTIC CONCLUSIONS

We have no special up-to-date treatise concerning self-mutilation as a total complex. Certain symptoms are touched only occasionally in discussions of various mental problems. We do not pretend to advance this problem so far as to be able to make very definite educational suggestions. Moreover, the fact that self-mutilation is in many cases related to or symptomatic of various pathological disorders (nervousness, psychasthenia, hysteria, and others) makes it difficult to suggest educo-therapeutic methods which could be applied to symptoms and not to the basis of the disease. These arguments explain the limitation of our presentation in this section to very general suggestions. We treated, however, in a somewhat broad manner certain aspects of a few forms of self-mutilation which probably constitute a separate disorder.

Self-mutilation on the basis of psychomotor excitability may be prevented by:

1. Periodic psychomotor release.

(*a*). Sports, games, interesting discussions, interesting occupation during convalescent period in bed (hand work, interesting reading, and conversation), the quickest possible getting out of bed.

(*b*). Treatment by means of therapeutic gymnastics.

2. Adequate choice of profession affording active occupation, avoiding sedentary life.

3. Persuasion and gradual working up of the self-control in the psychomotor sphere.

4. Hydrotherapy.

5. Prevention of such causes of psychomotor excitability as alcoholism, diseases of the nervous system, shocks, emotional conflicts, etc.

There arises, in regard to disappointments, the problem of the prophylactic preparation of young emotional and introverted individuals for the broader orientation in regard to vital problems, and the keener observation and understanding of people, for seeing reality as it is, and for changing the tendencies to idolatry into definite lasting values (a life of high moral value, interest in religion, literature, art, and social work). Sources of states of melancholy and depression are so diverse that presenting even a general outline concerning self-mutilation on the basis of these is impossible. Of great importance *in the prevention of anxiety states* is an early formation in the child of an ability to form broader contacts, and the sparing of conditions which might cause unconscious suppression of natural instincts. Finally, the elimination of punishment, of fright, and of quickly countermanded orders should be replaced by persuasion, especially in introverted and overexcitable individuals. Neuropathic dramatization has its most frequent source in the excessive fondling of the child, or conversely, in neglecting it, in useless activity, vacillation, or unequal treatment of children. Educational suggestions appear rather distinctly as a result of the content of the above-described cases. Methods which may be applied to hysterics *eo ipso* may be applied to self-mutilation on a hysterical basis. Self-mutilation on the basis of a real inferiority in one or another respect may be compensated for by the discovery in the given person of values which allow him to distinguish himself. (Usually such values can be found.) Definite suggestions come up in relation to people whose self-mutilation is based on anxiety or timidity. Gradually becoming accustomed *to contacts in a small group of friends of the same age and different* sexes is suggested in such cases. In cases of self-mutilation on the basis of feelings of guilt and inferiority, combined with inadequate environmental influence on the development of the sex instinct in the child, the basic problem, again, must be attacked. So-called self-mutilating endurance games most often do not require therapeutic or educational prophylaxis, but only a slight change of the need to distinguish oneself into a more mature and less infantile sphere of behavior.

Self-mutilation produces similar traits in emotionally hyperexcitable individuals through distressing experiences, submission to pessimistic moods, meditation about death and the uselessness of life, etc. The early creation in the child of an ability to form wider association and the formation of an inclination in a definite direction, depending on his interests and capacities, would be valuable in weakening the tendency towards an exclusively inner life and strengthening the life in the family group. In such people, the formation of an active basis for life and of a faculty to fight the evil in himself and others is possible. Pathological forms of asceticism, such as mutilation of the body, extreme self-destruction, bringing oneself to ecstasies by self-mutilation, or by the use of narcotics, the infliction of pain for the delight of suffering (intoxication with suffering), may develop on the basis of: experiences of mental injuries in childhood, states of anxiety and feelings of guilt, hysteria, tendency to obsessions, lack of refinement of the personality, or mental overexcitability. Therefore, the prevention and treatment of this type of self-mutilating symptom must be aimed at the basic disorder. Constitutional factors of poorly known structure and mechanism take part in the arousal of auto- and heteromutilating and sado-masochistic complexes, playing a great part in self-mutilating processes. According to the theory of Freud, the education of a child during the first years of life, based on principles of mental hygiene of the sexual life, can have great prophylactic value. The early prevention of overexcitability and of tendencies to aggression and explosiveness and the development of persuasion and self-control may also be of importance here. The comprehension by pedagogues, physicians, and parents of the psychology of the developmental periods (especially the period of maturation) may be of great importance for the prevention of the pathological appearance of these disharmonious tendencies and struggles of conflicting complexes characteristic of overexcitable individuals in this period. Lastly, the elimination of such determining factors as balanitis, phimosis, and various irritations of the rectum may weaken masochistic and sadistic tendencies. The struggle of conflicting complexes is very frequently of constitutional origin (sado-masochism, sexual ambivalence, and different states of disintegration of tendencies) and hence, it is difficult for us to discuss the treatment of these basic causes. We can modify only the effects of the activity of environmental influences on a given complex of constitutional traits, and in that way influence one or another system of traits. The same may be said in regard to introversion (which plays a great rôle in the predisposition to self-mutilation) if this introversion has arisen and developed on a constitutional basis (astheno-schizoid types of Kretschmer, tetanoid types of Jaensch, etc.). Introversion, as well as the group of conflicting tendencies which have arisen or become intensified following specific environmental influences, may be modified only within certain limits. It is a question of not allowing it to develop into self-mutilation, or into a greater disorder, and of the best possible arrangement of conditions for the relationship of such individuals with others, in order to take advantage of their oftentimes valuable cultural potentialities.

We can say nothing more definite about therapeutic influences on the disorders of deep sensibility which is assumedly at the basis of many self-mutilating and suicidal tendencies. Further investigations of the autonomic nervous system and endocrine glands may help to solve this problem.

13. CULTURAL VALUES ASSOCIATED WITH SELF-MUTILATION

We think that it is erroneous to consider all neuropathic and psychopathic symptoms only as pathological disorders which need to be cured. Up to date, we are far from having mastered man's various psychobiological mechanisms. We cannot tell why in one case children *of alcoholic heredity show unusual capacities, in another, epilepsy.* We do not know why hereditary syphilis exists, *in one case in conjunction* with a striking personality, in another with imbecility.

We must be still more careful in the treatment of psychoneurotics only as patients. Dr. Serrin's examination (at Dr. Toulouse's) of *very capable children revealed that about three-fourths* of a large group presented various symptoms of nervousness. The feeling of *inferiority,* whose compensation often leads to self-mutilation (self-*accusation, aversion, and hatred of certain of one's own traits* and their conscious suppression, overcoming and destruction), may be the source of many cultural advances according to the following view of Dr. C. Macfie Campbell:

> A *feeling of inferiority may* be an incentive to put forth one's best efforts, and perhaps no great accomplishment has ever been attained except under the spur of some such stimulus *(9).*

Such and other forms of inability to adapt to changing conditions and to broader relationships with others are found in authors of great philosophical and educational systems and in representatives of science. Lack of easy "rapport" with others is usually compensated for by *a tightening of the emotional link to one's family* (self-mutilation and suicide after loss of a near relative) and the intensification of the religious and cultural life. Psychic overexcitability, the lack of a uniform molding of the personality, and instability of the psychic structure are not always the basis of mental disease. Frequently, independent of disease, or after having gone through a psychotic episode, great mental suffering because of conflicts, or a crisis, stabilization of the personality at a *higher level occurs (Beers, Dostoyefsky). States of struggle of conflicting* complexes, suppression, and torture *of one complex* by another often produce outbursts of energy from a strong tension in the form of creative activity (Dostoyefsky, Schopenhauer, Nietsche, Weininger, Zeromski, and others). We think that educational suggestions recommending temperance, the acceptance of responsibility for one's actions, and the undertaking of necessary responsibilities are not alien to the spirit of a reasonable and moderate asceticism. It is an expression of the indispensable subordination of natural impulses under the will of the subject (9).

Reaching a high level of self-control and of inner harmony requires a long systematic training. Exercises in submitting the natural instincts to the authority of the intellect and moral principles of a philosophy of life in order to reach a high degree of self-control and inner harmony is by all means desirable. The desire for difficult undertakings, in spite of penetration of many obstacles for reaching a valuable goal, is in harmony with ascetic principles. Asceticism has also great merits in combating the tendency to live from day to day, to live for enjoyment. It has shown us definitely that in emotional individuals with strong and conflicting complexes one can, by great systematic effort, subordinate a complex of lower to one of higher value and use the combined energy for the perfection of moral values. The emphasis on the need for subordination of lower values to higher ones has not been without influence on the development of the idea of self-sacrifice for goals accepted as more exalted (society, fatherland, science). At the basis of self-sacrifice one can often find the influence of the doctrine of religious asceticism. A large degree of civic asceticism, arising under a strong, though most frequently barely noticeable, influence of religious asceticism, is the self-sacrifice in accepted obligations, as in saving one from drowning, in the leaders' not deserting the troops or the crew ["Where the sheep perish, must the shepherd also fall,—Zolkiewski (58)]. Lastly, one of the highest ideas of humanity, the purifying value of suffering (provided it is correctly interpreted), is continuously alive, for example, in the deepening of the moral culture of man by suffering, in its influence on philosophical creation and on the origin of the educational and moral system. We must, on the other hand, direct our attention to the perverted practices of asceticism, beginning with the torturing of the body and ascetic epidemics (cults of self-flagellants), and ending with self-abasement, ecstasy in degradation, the practice of tortures for the sake of torturing, more or less unconscious narcotization by suffering (58), and, lastly, inconsistent with human self-respect, the terrorization of the senses and compensation of sensual needs in a humiliating manner. This testifies to the absence of culture of the pseudo-ascetic (baseless idolization of the chosen persons of the other sex, application of tortures as strongest agent for sexual experiences, etc.) Separation from family obligations, symptoms of cruelty to the nearest ones, indifference to the sufferings of others, with the simultaneous practice of strict asceticism in relation to oneself, again give no evidence of a high level of moral culture but, rather, of a warped personality or a serious mental illness. Severity to oneself should be accompanied by sensitivity to the sufferings of others. In other cases we deal with pathological fanaticism, with a need for torturing not only oneself but also others, which has grown out of a pathological repression of one's desires, and a more or less unconscious need of vengeance on others, under the guise of a fight for religious principles (Inquisition).

In the conclusion of our deliberation we gain the conviction that voluntary and non-pathological forms of self-mutilation, useful for self-control and the harmonization into a higher type of personality, are a very important mechanism of self-education, of the completion of sublimation of a way to a philosophy of life, based on the ennobling value of suffering. In emotionally overexcitable, introverted individuals, this is one of the noblest forms of adaptation to life after having experienced hardships, an expression of the protest against injury, suffering, and death.[4]

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[4] Non-adaptation of these individuals may express itself in such forms of protest as mental disease, suicide, and crime.

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MASCULINE TEMPERAMENT AND SECONDARY SEX CHARACTERISTICS: A STUDY OF THE RELATIONSHIP BETWEEN PSYCHOLOGICAL AND PHYSICAL MEASURES OF MASCULINITY*

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I. INTRODUCTION

The title of the present study will suggest to the reader that it is concerned in general with those relations which have been and still are presumed to exist between the physical appearance of an individual and his behavior. If the age of a human belief were any mark of its creditability, there would be little doubt about the existence of such relations; type theories claiming definite association between physical appearance and temperament go back historically at least to the time of Aristotle.

In modern times the advent of psychological measures and the correlation technique make it possible to subject such theories to a more rigid examination than was previously possible. And the quite recent development of test procedures which disclose wide differences between men and women with respect to their interests and attitudes raises the following question: Are these psychologically measured sex differences related in any significant degree to those sex dimorphic physical traits which we commonly refer to as "secondary sex characteristics?"

The present study attempts to answer that question, as well as the further question: Is the popular conception of masculinity related to the biological and the psychological conceptions? Specifically this investigation makes use of three kinds or classes of "masculinity" measures: (1) personality ratings (Popular Index), (2) Stanford Attitude-Interest Analysis Test Form *B* (Psychological Index), (3) three physical secondary sex characteristics: distribution of hair over the body, hip and shoulder dimensions, and pitch level of the speaking voice (Biological Index).

The first study of relations between psychological and physical measures of masculinity involving the use of psychological tests was made by Ulvin (43) under the direction of Professor D. G. Paterson at the University of Minnesota. Sports information and play interests were used as the indices of psychological masculinity, and hip-shoulder dimensions were taken as measures of biological masculinity. Reliable correlations did not emerge between the two kinds of measures, and the results were interpreted by Ulvin as suggesting "that masculinity or femininity in recreational pursuits is probably more the result of training than of any glandular differences" (43, p. 32).

On the surface at least the results of the Ulvin study are almost wholly negative to the thesis that high order or even moderate relations exist between psychological and somatic measures of masculinity. However, a word of warning against final judgment was made by Paterson:

> It is entirely possible, of course, that more valid measures of masculinity as a psychological trait will yield positive results. Again, it may be that our physical measures of masculinity were not well chosen. Conceivably, a battery of tests of psychological masculinity may yield a close positive correlation with a carefully selected group of physical signs of masculinity such as voice, skin texture, development and distribution of hair on the body, and more elaborate measurements of physical secondary sex characteristics. These considerations dictate avoiding any dogmatic denial of significant relationship (30, p. 266).

Because of the somewhat narrow scope of the Ulvin study, the present one, at the suggestion of Professor Paterson, was undertaken. It is a broader investigation with respect to both kinds of measures. As will be seen later, the psychological test includes a wide variety of materials, and two additional physical traits, hair distribution and voice pitch, are brought into the picture.

The writer is fully aware that no factual basis for an antecedent expectation of psychosomatic correlation is laid down in these brief preliminary remarks; much of the following discussion will of necessity be devoted to that objective. Some will feel that this purpose is not possible of attainment at the present time, that according to our understanding of the biological aspects of the problem the three bodily characters are "sex" traits only in the sense that they exhibit "differences" between the normal male and female. That may be true, although there is certainly some evidence, as will be shown later, that the physical traits are "sex conditioned" in the biological sense, i.e., they depend to some extent for their normal development upon the functioning of the primary sex glands.

But even if dimorphism, or difference, is the only criterion which can be consistently applied in attempting to identify interests and attitudes, hair distribution, hip and shoulder dimensions, and voice pitch as "sex" phenomena, ample justification for an investigation of relationships between these traits resides in the following considerations.

1. There is probably a widespread belief that personality can be judged to some extent in terms of peripheral body signs of masculinity and femininity. It is implied in the sort of humor one sometimes encounters on the screen and stage. For example, a character enters a comedy scene. He is a man of swarthy complexion, bull-like bodily proportions, an abundant head of hair, and a stubble beard. After the audience has had ample opportunity to observe his silent presence on the stage, he suddenly breaks into a pattern of extremely effeminate speech with high-pitched gushing intonations and swaying of the hips—much to the amusement of the audience. The laughter which such a stage trick provokes probably arises in some way from the incongruity between the masculine appearance of the man and the effeminate character of his speech habits. The present study is in part an investigation into the validity of these popular concepts of masculinity.

2. Within the field of science there are those who claim that some degree of relationship exists between psychological traits and physical signs of masculinity. Ellis (13) claims at least a low order of correlation between mental and physical inversion. Claiborne (8) evidently believes that Ellis' position is much too conservative and submits case studies to show a high order of relationship between psychological and physical femininity. Dunlap (12) also apparently believes that there are high positive correlations among a large number of physical and behavior sex traits.

3. The fact that the various measures involved in the study can, according to present terminology, be identified with "sex" simply because they all exhibit sex differences raises the interesting question: To what extent are they correlated with each other? Do high intercorrelations exist among the somatic traits? Lillie challenges the presuppositions of some of us when he makes the following statement:

> A brief definition of the biological conception of sex is impossible. As a matter of fact we do not know "sex" but only sexes. There is no such biological entity as sex. What exists in nature is a dimorphism within species into male and female individuals, which differ with respect to contrasting characters, for each of which in any given species we recognize a male and a female form, whether these be classed as of biological, or psychological, or social orders. Sex is not a force which pro-

> duces these contrasts; it is merely a name for our total impression of the differences (1, p. 1).

Lillie's statement that sex is not a biological entity is of particular interest here because the inclusion of more than one physical sex trait in the present investigation affords an opportunity to test his claim through the use of the correlation technique.

This thesis is not an investigation of homosexuality. According to psychologists at Stanford University (*1*, p. *876*) that sort of abnormality cannot be predicted in terms of the *M-F* Test Form *B* scores. Homosexual individuals yield high scores in the direction of the opposite sex, but such scores are by no means certain indicators of homosexuality.

The writer experiences some difficulty in finding suitable terms in referring collectively to the three sex dimorphic characters: hair abundance, hip-shoulder dimensions, and pitch level of the speaking voice. The two first mentioned traits are not functional in character and can therefore be properly referred to as "structural," "somatic," "bodily," "morphological," and "physical." The speaking voice, however, varies in pitch in its normal conversational pattern and presumably varies in general pitch level with changing emotional states. Voice pitch may, therefore, have to some extent a psychological determination as well as a structural determination. The writer is not prepared to state which causation is the more important; he wishes merely to say that in referring to the three secondary sex characteristics as "physical," "somatic," etc., he does so without intentional prejudice against the possibility that convention and habit as well as laryngeal size may be determinants of the pitch level of the speaking voice.

In the present study the term "physical" is acceptable provided, of course, it is divorced from its philosophical implications. This investigation is not seeking proof or disproof for any existing philosophical assumption regarding the relation of the "mind" to the "body." It is an investigation into the possible relationships between a certain psychological measure and three somatic traits. Its chief purpose, therefore, is to bring some evidence to bear upon the question: Is the psychologically measured trait a biological function, or is it chiefly determined by the social environment? Although the term "soma" seems to have acquired some special meanings in medicine, it will be used in this manuscript in its most general sense as a synonym for "body." It is sometimes used in this fashion by biologists (1, pp. 2, 15, 339).

2. THE POPULAR CONCEPTION OF MASCULINITY

As stated in the introduction, the purpose of this investigation is to discover what relations exist between masculinity of interests and attitudes on the one hand and three somatic sex traits on the other. The physical traits are: abundance of hair over the body, hip and shoulder dimensions, and pitch of the voice.

In a preliminary investigation an attempt was made to find if any of these physical traits are popularly associated with masculinity. The step was not indispensable to the main purpose of the study, but it might conceivably give an added interest if it could be shown that the measurement of the physical traits yield an index of biological masculinity and popularly conceived masculinity concurrently.

There is no doubt that a fairly well crystallized popular conception of masculinity exists. Everyone is familiar with the responses which deviations from normal male and female behavior elicit in the modern social world. They are exemplified in the use of the terms "sissy" and "tomboy" as negative sanctions among children, in the use of inversion on the stage and screen to provoke laughter, and in the seeming assurance with which certain traits are accepted as signs of inversion—and in some cases moral perversion.

The writer attempted to find out more definitely what constitutes the popular conception of masculinity—or more exactly: to what items of personal appearance and behavior individuals are responding when they refer to a man as being "masculine" or "effeminate," or to a woman as being "feminine" or "mannish"? Men and women at the undergraduate college level (students in Experimental Psychology Classes at the University of Minnesota) were asked to give free association descriptions of the physical and mental traits of the following personalities:

1. The most masculine man of their acquaintance.
2. The most effeminate man of their acquaintance.
3. The most masculine woman of their acquaintance.
4. The most feminine woman of their acquaintance.

For purposes of analysis, 150 of these sets of descriptions, 75 by men and 75 by women, were taken at random from a slightly larger number. The descriptive terms were then divided into seven arbitrarily chosen classes. The responses are of a free association sort and the data are valuable only as a crude index of trends. The findings, nevertheless, suggested an association of certain anatomical features, ways of dressing, behavior mannerisms, etc., with masculinity and femininity. Immediate interests, however, centers only about three anatomical features, i.e., hair, hip-shoulder dimensions, voice.

With respect to these three physical traits masculine and feminine personalities as here described differ strikingly only in the attributes of the voice. The results are tabulated according to the frequency with which particular descriptive terms are mentioned (Table 1).

TABLE 1

Popular Conception of the Vocal Attributes of Masculine and Feminine Personalities

Described by men	Described by women
Masculine Men	
low 10, loud 2, rough	low 15, loud 2, resonant 2
gruff, hard, harsh, strong	heavy 2, gruff, full
smooth	medium, husky
Effeminate Men	
high 27, soft 8	high 27, feminine 4
effeminate 4, tenor 4	soft 3, weak 2
not masculine 2	strained, small
modulated, quiet	screechy, sweet
suave, flowery	too cultured, good
whining, silky	falsetto
Masculine Women	
deep 15, harsh 8, low 7	deep 17, low 9, husky 4
loud 5, mannish 3, hard 3	loud 4, harsh 3
husky 2, rough, guttural	rough 2, gruff 2, coarse 2
peculiar pitch	hard, mannish, unpleasant
dry, contralto	rasping
medium pitch	
Feminine Women	
soft 11, low 3, high 3	high 5, low 4, soft 2
well modulated 2, sweet	medium 2, modulated 2
tender, squeaky, not squeaky	pleasant 2, sweet, moderate
soprano, cultured, whining	quiet, delicate, weak
	cheerful

It will be noted that there is a marked relation between pitch of the voice and personality. This is especially true in the descriptions of effeminate men, where the voice is frequently described as high. There is no very apparent association of high voice pitch with femininity in the feminine woman. There is some degree of association between low voice pitch and masculinity in the descriptions of masculine men, and a marked one in the descriptions of masculine women if the terms "deep" and "low" are accepted as synonymous.

One is impressed, however, with the fact that the association of voice *quality* with masculinity and femininity is about as marked everywhere as is the association of pitch. In general the masculine voice is described as "harsh," "hard," and "coarse," whereas the feminine voice is described as "soft," "modulated," etc.

Hair abundance is almost never mentioned in the descriptions; only an occasional reference to a beard, moustache, or heavy eyebrows for masculine men. Hip and shoulder dimensions also receive scant attention from the observers who wrote these descriptions, although broad shoulders are sometimes mentioned in describing masculine men.

SUMMARY

It may be said then that of the three secondary sex traits listed in the Introduction, pitch appears to be associated with the popular concept of masculinity. The frequency with which it is mentioned in these descriptions justifies the conclusion that voice pitch is, in terms of the popular conception, a sex trait. Its relation to personality ratings, to the *M-F* Test scores, and to other physical traits is taken up in the succeeding chapters.

PSYCHOLOGICAL MEASUREMENT OF MASCULINITY

investigation the psychological measure of masculinity is f the Stanford Attitude-Interest Analysis Test (*M-F* nce this test is the pivot measure in the intercorrelations of s, a preliminary examination of its contents, reliability, to differentiate men from women is indispensable.

ARLY STUDIES OF PSYCHOLOGICAL MASCULINITY

the development of the *M-F* Test, it had been adequately ed that there are sex differences in certain interests, activinformation. Furthermore, it had been shown that these are not a function of intelligence as measured by standard e tests.

l (10) and McGhee (29) found differences between oys in their amusement preferences. The Croswell study at among 700 amusements preferred by 1,000 boys and about 60 per cent were restricted to one sex alone, and per cent were common to both. In the McGhee study a games was presented to about 4,000 boys and over 4,500 een the ages six to 18, with instructions to indicate the five rred games. Large sex differences were disclosed.

ogram of investigation beginning in 1921 Terman (37, p. d that children's interests in various games and amusemeasured by the degree of preference for them, and by the time devoted to them, depends upon age and sex and not ligence. Masculinity indices were developed in a thoroughly manner, the use of which exhibited striking sex differences.

NFORD ATTITUDE-INTEREST ANALYSIS TEST (*M-F* TEST)

extensive investigation of sex differences in non-intellecwas then begun at Stanford University (38). An atject as the word that "goes best with" the stimulus word (60 items).

2. Ink Blots—a page of ink blots each followed by the names of three or more subjects, one of which must be associated with the ink blot by underlining (18 items).

3. Information—a general information test of the multiple choice type (70 items).

4. Emotional Responses—subject indicates his emotional responses to situations tending to arouse anger, fear, disgust, pity, or moral disapproval (105 items).

5. Likes and Dislikes—subject indicates whether he likes, dislikes or is indifferent to certain types of books, objects, and activities (118 items).

6. Characters and Prejudices—subject indicates whether he likes, dislikes, or is indifferent to certain historical characters, and indicates whether he believes certain widespread popular notions are false or true (41 items).

7. Personal Information—a page of questions of the general type found in the Woodworth-Cady Questionnaire (42 items).

The 454 items (Form *B*) of the test were selected from a larger number because they showed consistent sex differences in a number of experimental groups.

As previously indicated, the earlier Masculinity Index based upon play interests and activities yielded very slight, if any, relation between intelligence and masculinity. So also this later index is to a very high degree independent of intelligence. According to Terman, there is a difference in the means for gifted boys and control boys, which indicates that the former are less masculine. The difference, however, is not statistically significant. On the other hand, it is quite certain that there is a difference between gifted girls and the control girls, the derived difference between the means being four times the standard error of the difference. The gifted girls appear to be somewhat more masculine than the control girls.

As regards the consistency with which the test functions, Terman reports a reliability of "+.90 or better within the range of a single sex."

Terman also makes some general comments on the *M-F* Test which are of interest at this point. He says that extreme deviations in test scores indicate a marked difference in personality. These persons "stand out in a vast majority of cases as different from the average person of the same sex in their behavior responses" (38, p. 161). As regards the etiology of these distinctive personality trends the author of the test speaks as follows:

> Whether such tendencies (invert tendencies) are chiefly inborn or acquired has not yet been established with certainty, though the Miles-Terman investigation suggests that in certain cases at least they are largely acquired. Boys who have been too much mothered usually showed as characteristically feminine in their test responses, and the girls who have been excessively fathered usually test decidedly masculine. Such influences are probably sufficiently potent in some cases to be major determinants of interests and attitudes which characterize an individual throughout life, affecting sexual and other forms of behavior and the choice of vocational and avocational pursuits" (38, p. 161).

M-F Test as a Measure of Masculinity

The Differentiating Power of the M-F Test. The distribution of *M-F* Test scores for 100 men and 100 women of the Liberal Arts College of the University of Minnesota is distinctly bi-modal, the two included distributions being normal within the range of a single sex. One woman reaches or exceeds the median of the men; two men reach or exceed the median of the women. The difference between the means for men and women is slightly more than 18 times the standard error of the difference.

The Reliability of the M-F Test. The odd-even reliability of the *M-F* Test is +.62±.04 and +.66±.04 for men and women, respectively. Correction for twice the length of the test raises these coefficients to +.77 and +.80. The test-retest coefficient, using Form *B*, is +.89±.02.

M-F Test and Academic Level. The relation between the *M-F* Test and academic level is shown in Table 2.

TABLE 2

	Men			Women		
	N	*Mean*	$S.D._M$	*N*	*Mean*	$S.D._M$
Seniors	5	77	18	7	—88	13
Juniors	32	70	10	29	—76	10
Sophomores	56	75	7	50	—68	6
Freshmen	14	50	17	14	—65	15

None of the differences is reliable, although there appears to be a slight trend toward an increase in average score from the Freshman to the Senior year. Senior men appear to be more "masculine" than freshman men, and senior women appear to be more "feminine" than freshman women.

M-F Test and Age. A coefficient of —.09±.05 was found between *M-F* Test scores and age for 204 male students attending Hamline University and the University of Minnesota. For a description of the age range and distribution of this group see Table 7.

M-F Test and Intelligence. The correlations computed between *M-F* Test scores and College Ability Test Scores (part of the entrance examination at the University of Minnesota) are —.03±.07 and —.05±.07 for 91 men and 81 women, respectively. The correlation between the Otis Group Test and the *M-F* Test was +.22 ±.06 (for men).

Extent to Which the Purpose of the M-F Test Is Concealed from the Subject. In view of the negative sanctions commonly attached to masculinity in women and femininity in men it is conceivable that many subjects might attempt to produce a particular kind of score. Therefore, it is important to know to what extent it is possible for an individual taking the *M-F* Test to infer the purpose of the test. Thirty speech students at Hamline University were asked, immediately after taking the test, "What is the purpose of the test, what is it intended to measure?" None of the responses indicated a correct inference regarding the precise purpose of the test. Usually the answer consisted of a rather vague reference to psychological testing with an occasional mention of attitudes, character, or personality.

The Validity of the M-F Test. At the present time the validation of the test is a research problem in itself. It is not possible to determine what the test measures on the basis of any published facts. Nevertheless, it does have a validity of a self-contained sort, for such is provided in the method of its construction. The items of the test were selected in a thoroughly empirical manner; those items the responses to which did not exhibit sex differences were excluded.

It is evident also that whatever the test measures is highly independent of intelligence. It may be identified, therefore, with the non-intellectual aspects of mental life, and it is in this sense an index of "temperament."

The justification for the use of this test in the present study of "masculinity" rests essentially upon two considerations: (1) It exhibits a species of psychological "sex" dimorphism in that it differentiates markedly between men and women with respect to certain interests and attitudes; (2) it measures this sort of "masculinity" with a consistency adequate for the purpose of group investigation.

As an instrument of precise psychological measurement the test is not completely developed (39). Apparently improvement can be made, particularly in the determination of the masculinity value, so to speak, of the individual items. Presumably they are not equivalent. Nevertheless, the Test Scores may be regarded as quantitative in the sense that they exhibit the individual's preponderance of typically masculine or typically feminine responses to the material in the test. The score is the algebraic sum of the two kinds of responses.

SUMMARY

1. The *M-F* Test shows a marked sex difference in interests and attitudes.
2. The *M-F* Test is sufficiently reliable for the purpose of group investigation.
3. The *M-F* Test scores do not correlate significantly with age among college students.
4. The *M-F* Test scores do not correlate significantly with intelligence.
5. The purpose of the *M-F* Test is well concealed from the subject.
6. There may be a slight correlation between the *M-F* Test and level of academic achievement.

4. MASCULINITY AND FEMININITY RATINGS

The data referred to in Section 2 indicate that people in general have a well-crystallized idea that certain physical signs are associated with masculine and feminine personality. This suggested that ratings might yield a reliable index of the impression which one individual makes upon another with respect to the latter traits, and permit the determination of the relation existing between *M-F* Test scores and the Popular Concept of Masculinity. In a sense the next step can be regarded as an attempt to validate the test, since it involves the correlation of the test with a criterion of "sex."

THE RELIABILITY OF MASCULINITY AND FEMININITY RATINGS

Ratings for three personality traits, namely, Masculinity-Femininity, Crudeness-Refinement, and Shyness-Boldness were made by students upon each other in 10 beginning Speech classes at the University of Minnesota and in four similar classes at Hamline University Numerical values were assigned to scale locations, and the score for each person was computed as the raw average of all ratings given him by both men and women judges. In view of the wide differences in standards among raters found in the use of rating scales (31), it may not be permissible to average the ratings in this fashion. It was found, however, that men and women use the same portions of the Masculinity-Femininity scale as well as the Crudeness-Refinement scale, there being no reliable differences between the average ratings yielded by women judges and those yielded by men judges for either trait. Furthermore, it was found (Table 3) that the averages for

TABLE 3

AVERAGE PERSONALITY RATINGS FOR MEN IN SIX SPEECH CLASSES, BASED UPON THE POOLED JUDGMENTS OF THEIR CLASSMATES

	Ratings of masculinity-femininity		Ratings of crudeness-refinement	
Speech classes	Mean	σ_M	Mean	σ_M
I	6.00	.53	6.61	.19
II	6.25	.97	6.00	.35
III	6.50	.29	5.14	.55
IV	6.09	.45	6.00	.13
V	6.36	.31	6.15	.24
VI	6.55	.33	6.05	.29

the various Speech classes do not differ greatly. It may be that some variations in standards among the individual judges are concealed in the process of averaging the raw scores. The personality rating, however, given to a particular person is determined not by a single judge but by a number of them, and when the distributions of these pooled judgments are compared the differences in *group* standards are conspicuously absent. The procedure of averaging the raw scores, therefore, appears to be justified.

The raters also were asked to give an estimate of the degree of their acquaintance with the individual rated. Spaces numbered 1, 2, and 3 were provided with each set of rating scales, and instructions for their use were given as follows:

> If you are acquainted with the individual whom you are rating only through hearing him speak in this class, put a check in space 1. If, in addition to hearing him speak in this class, you occasionally engage him in conversation before or after class, or on the campus when you meet him, place a check in space 2. If you associate with him and regard him as a close acquaintance, place a check in space 3.

With the exception of two cases, all ratings were made while the individual being rated was speaking before the class. His classmates were asked to rate him not only on the basis of that day's performance, but on the basis of everything they knew about him. A random *sampling of 50 "degree of acquaintance" ratings among the University* of Minnesota Speech students yields the following distribution:

1.	Known to the rater only through speeches in class....	39
2.	Known also through occasional conversations........	7
3.	A close acquaintance	4

A random sampling of 50 "degree of acquaintance" ratings among the Hamline University Speech students yields the following distribution:

1.	Known to the rater only through speeches in class....	19
2.	Known also through occasional conversations......... .	20
3.	A close acquaintance..............................	11

The University of Minnesota classes had been in session from seven to 10 weeks, with an average speaking opportunity of approximately four. The Hamline University students had been associated in class from eight to 16 weeks (three-fourths of them for 16 weeks) with an average speaking opportunity of approximately eight.

The differentiating power of the three rating scales, based upon a preliminary study of 100 men and 100 women at the University of Minnesota, may be summarized as follows:

1. *The Masculinity-Femininity Scale* differentiates between men and women in the expected direction, i.e., the men are rated as being more masculine than the women. The difference between the averages for men and women is equal to 7.63 times the standard error of the difference.
2. *The Crudeness-Refinement Scale* differentiates between men and women in the expected direction, i.e., men are rated as being more crude than women. The difference between the means for men is equal to 4.08 times the standard error of the difference.
3. *The Boldness-Shyness Scale* does not differentiate reliably between men and women. The difference between the means is 2.27 times the standard error of the difference; the women are rated as being more shy than men. This scale will be given no further consideration in this discussion since it fails to differentiate reliably between the two sexes.

The reliability of the scales derived by correlating the average ratings by one half of the judges with the average ratings by the other half of the judges are: +.73±.03 for Masculinity-Femininity, and +.63±.04 for Crudeness-Refinement. When corrected for twice the length of the test (twice the number of judges) they are +.84±.02 and +.77±.03, respectively.

M-F TEST SCORES AND PERSONALITY RATINGS

The correlations derived between the two personality traits and the *M-F* Test scores for 110 men in the Main Experimental Group for whom the ratings were available are: +.32±.06 and +.40±.05 for Masculinity-Femininity and Crudeness-Refinement, respectively. Although the Main Experimental Group includes only *men*, personality ratings and test scores are available for a number of women. These ratings were secured in the same classes as were those of the men. Personality ratings for 84 women students at the University of Minnesota yield the following correlations with the *M-F* Test:

+.40±.06 for Masculinity-Femininity and +.30±.07 for Crudeness-Refinement.

These correlations indicate a moderate relationship between the personal make-up of an individual as observed by his associates and his position in the distribution of *M-F* Test scores. It may be that the ratings are somewhat based upon the interests and attitudes of the subjects as revealed to the raters in the speeches which the subjects made in the classroom. But in view of the fact that the popular concept of masculinity and femininity is to a considerable extent crystallized around certain physical signs, it seems very reasonable to believe that these ratings are determined largely by the physical appearance of the subjects. It is conceivable that the ratings were based partly on voice pitch, and that pitch will be found to have a significant relation to the personality ratings and to the *M-F* Test, since the latter two correlate significantly with each other.

SUMMARY

Moderate positive correlations exist between ratings for Masculinity, and also ratings for Crudeness, and the *M-F* Test. A moderate relation is therefore demonstrated between the Popular conceptions of Masculinity and the *M-F* Test.

5. PHYSICAL SEX TRAITS AND THEIR MEASUREMENT

In this investigation of psychosomatic correlation among "sex" traits, three human male characteristics were taken as physical indices of masculinity: abundance of hair over body, hip and shoulder dimensions, and pitch of the voice. The purpose of the following discussion is to show that these characteristics are sex traits in the sense that they are sex dimorphic. Evidence as to their sex conditioning (dependence upon the primary sex glands) will also be presented. This discussion will be followed by a description of the physical measures upon which the psychosomatic correlations reported in the succeeding chapter are based.

THE SEX DIMORPHISM OF THE HUMAN BODY

No one would seriously doubt that men and women differ markedly with respect to the abundance and distribution of coarse hair on the face and body, and also with respect to the pitch level of the speaking voice. These traits are mentioned so frequently as male secondary sex characteristics in the biological literature on human sex that there seems to be no need for elaborate discussion here.

The writer asked a trained nurse, a biometrician, and two practising physicians to rank the different parts of the body according to the extent to which abundance of hair differentiates the sexes. There appears (Table 4) to be a fair amount of agreement among these observers, suggesting the existence of general hair dimorphism, and

TABLE 4

SEX DIFFERENCE IN HAIR ABUNDANCE

Rankings of various parts of the human body based upon the amount of sex differentiation in hair abundance.

	Judges' rankings*			
	I	II	III	IV
Face	1	3	1.5	2
Abdomen	2	2	3	2
Breast	3	1	1.5	2
Back	4	4	4	6
Arms	5	5.5	5.5	4
Legs	6	5.5	5.5	5
Head	7	7	7	7

*Judges: I Trained Nurse, II Biometrician, III Physician, IV Physician.

at the same time indicating that the various hair locations differ somewhat in the amount of dimorphism which they exhibit.

It is universally believed that the male and female voice, in adult life, differ in pitch by approximately one octave. Pear (32, p. 163) found in a study of "radio personality" that the sex of the adult radio speaker can be judged with great accuracy on the basis of the voice alone.

Relative wideness of the shoulders in the male and relative wideness of the hips in the female are not frequently mentioned in the literature on sex. Nevertheless, they are sex dimorphic traits. Ulvin (43) presented measures in an anthropometric study of 100 men and 100 women showing that both the biacromial and the bihumoral shoulder widths are significantly greater in the male than in the female, in absolute terms and also in relation to height. The intertrochanteric hip width of the women was found to be significantly greater than the same measurement for men when height was held constant.

It seems entirely safe to conclude that the three physical measures under consideration here are "sex" traits in the sense that they are sex dimorphic.

GONADAL CONDITIONING OF SEX DIMORPHIC PHYSICAL TRAITS

There is considerable justification also for regarding hair abundance, hip and shoulder width, and pitch of the voice as sex traits in the sense that they depend for their normal development upon the primary sex glands. Pratt summarizes clinical observations on the effects of castration as follows:

> In a prepuberally castrated man there is failure in the development of penis, prostate, seminal vesicles, and vas deferens. Distribution of the hair of the body varies from that of the normal man, in lack of development of the beard, scanty hair in axilla, and limitation of the upward growth of hair on the pubis. The larynx retains its infantile form and the pitch of the voice remains high (1, p. 886).

According to Pratt, prepuberal castration is accompanied not only by structural variation but also by an absence of normal sexual activity. Cohabitative ability is sometimes reported, but Pratt attributes this to the individual's desire to "create an impression of normal potentia as a protective mechanism."

The available evidence indicates that postpuberal castration of the male is sometimes not so marked in its effects as is prepuberal castration. Thorek (41) reports the effects of castration of a man at the age of 30 involving complete removal of the penis, scrotum, testis, and spermatic cords. After five and one-half years the beard and moustache had disappeared, the voice had become higher in pitch, there was an accumulation of fat about the breast and hips, and the subject reported a total loss of sexual thoughts and desires.

McCullagh has reported somewhat similar effects from the castration of a man at the age of 36. Sexual urge was reported to have disappeared one year after castration. There was an accumulation of fat at the belly, breasts, and hips, the beard was unchanged but the distribution of pubic hair was feminine.

Heldt reports quite different results from a case of self-castration at the age of 45. The subject is reported to have become more active sexually after the operation than he had been prior to it. Heldt has no history on the case beyond three years after the operation.

Rowe and Lawrence (34, p. 591) report a case of castration of a man at the age of 25. Eight years later he was depressed emotionally, had given up a successful career and retired to a small town. He married, found himself capable of coitus, and resumed active pursuit of his career.

A beneficial amount of reduction of the libido resulting from the castration of sex offenders and outlaws has been reported by Barr (2, p. 231) and by Quervain (11, p. 252).

There seems to be considerable evidence in the clinical picture of male castrates that sex dimorphic traits, particularly in the developmental stages, depend upon the gonads. Speaking with particular reference to the physical traits involved in the present study, it will be noted that pitch and hair distribution are among those conditions observed to be affected, especially in cases of prepuberal castration.

The case for the sex conditioning of voice pitch is quite impressive, based as it is upon a number of considerations. First, the high-pitched voice is frequently mentioned in descriptions of prepuberally castrated adult males. Second, the general dimensions of both the male and female child are increasing rapidly at the time of the typical change in the male voice; one would expect a similar change of voice in the two sexes if the phenomenon were explainable simply in terms of increase in body size. Third, growth velocity ratios such as those presented by Scammon (20) show a more striking change in rate of growth for the testis than for general body size when weight is used as the criterion of the latter. So far as the present writer knows, change velocity ratios for the male child voice have not been determined, but in view of the suddenness with which the change occurs in many cases it is quite reasonable to suppose that its graphical presentation would be similar to that of the testis. Fourth, the pitch level of the voice does not correlate reliably with height in the adult male. These considerations indicate that the typical downward shift in the pitch of the voice at puberty is not simply the result of laryngeal participation in the general increase of body size, but that it is peculiar to the male child, and dependent to some degree upon some function of the testis.

The case for the gonadal conditioning of hair abundance is not so clear cut. In the opinion of some biologists, at least, it has a very doubtful status as a secondary sex characteristic. The relation of hair distribution to the testis hormone is not understood. Disturbances have been noted to accompany pathology of the adrenal glands. Danforth (1, p. 44) believes that the gonads "play some, but in the adult not a very important, rôle in stimulating hair growth." Danforth further believes that hair growth may reflect the influence of differential thresholds of sensitivity of various parts of the body to hair growth stimulating endocrines. He observes that there is no high degree of relationship in the amount of hair appearing on various parts of the body, and calls attention to investigations of the effects of varying amounts of gonad hormone upon the plumage pattern of the brown leghorn. It has been observed that sub-normal amounts of ovarian hormone produce a mosaic pattern of male and female plumage (1, p. 596).

There is little or nothing in the clinical reports of the effects of castration about the relative size of hips and shoulders. The absence of comment is due perhaps to the fact that without measurement, variations from normal would not be apparent. It may be said, however, that the general dimensions of the male child begin to exceed those of the female child at or near the onset of puberty (20), and that the relatively larger shoulder width of the male begins to emerge concomitantly with sexual maturity.

DESCRIPTION OF THE PHYSICAL MEASURES

On the grounds that the three physical traits under consideration in the foregoing discussion are clearly sex dimorphic, and are probably dependent upon the gonads for their normal development, they were accepted in this investigation as "sex" traits, and measurements of the same were taken in the following manner:

The Experimental Group. Hip and shoulder measures and ratings of hair abundance were taken on 204 male students at the University of Minnesota (96 students) and Hamline University (108 students). Voice records were secured for the University of Minnesota group, these 96 subjects being taken at random from among the students in the Fundamentals of Speech classes. The Hamline University subjects were taken at random from among the students in compulsory classes in Physical Education. Inasmuch as a comparison of average physical measurements, as well as *M-F* Test scores, for the two groups did not reveal significant differences (Table 5), they were combined into a single experimental group. These 204 men will be referred to as the Main Experimental Group.

TABLE 5

GROUP COMPARISON OF HAMLINE AND MINNESOTA UNIVERSITY STUDENTS: AVERAGES AND DIFFERENCES, SIGMA OF DIFFERENCES

	Minnesota (96 men)		Hamline (108 men)		Diff./$\sigma_{diff.}$
Measures	Av.	$\sigma_{Av.}$	Av.	$\sigma_{Av.}$	
M-F Test	70.25	5.25	67.50	5.12	.38
Hair	156.50	6.07	145.00	5.50	1.40
Biacromial	38.17	.20	37.93	.18	.89
Bihumoral	40.44	.19	40.11	.17	1.33
Intercrestal	28.13	.21	28.01	.15	.45
Intertrochanteric	32.63	.19	32.42	.17	.77
U. circumference	104.36	.51	105.16	.53	1.08
L. circumference	94.04	.50	94.02	.42	.03
Height	175.47	.63	175.07	.40	.46

The Physical Measures. Seven body measures were taken: biacromial shoulder width, bihumoral shoulder width, circumference of the shoulders at the bihumoral level, intercrestal hip width, intertrochanteric hip width, circumference of the hips at the intertrochanteric level, height. All were standing measures.

The subject was placed with his back to a door, heels together, shoulders erect but not strained. To give uniformity to posture the shoulders were first flattened against the door and then relaxed sufficiently to permit the taking of the shoulder circumference measure. These measures were taken by the writer and by Mr. Batson, at the same conference but without knowledge of each other's results, for 74 of the University of Minnesota subjects. The coefficients of reliability reported (Table 6) are the correlations between the measures taken by Mr. Batson and those taken by the writer.

TABLE 6

RELIABILITY COEFFICIENTS FOR PHYSICAL MEASURES

	Body measurements (N 74)		
Biacromial	+.85±.02	Intercrestal	+.91±.02
Bihumoral	+.89±.02	Intertrochanteric	+.95±.01
Upper circumference	+.94±.02	Lower circumference	+.97±.01
Height	+.99±.01		
	Hair scores (N 107)		
Head	+.25±.06	Arms	+.70±.03
Breast	+.90±.01	Back	+.71±.03
Abdomen	+.85±.02	Lower limbs	+.80±.02
Face		Hair	+.87±.02*
	Pitch (N 96)		
Observer 1 vs. Observer 1	+.80±.02		
Observer 2 vs. Observer 2	+.78±.03		
Observer 1 vs. Observer 2	+.71±.04		
Record 1 vs. Record 2	+.65±.05		

*Simple average of hair scores for all parts of the body. Unless otherwise indicated the "hair" refers to this index in the succeeding tables.

To get an index of degrees of hairiness possessed by the subjects, separate rating scale markings were made for six different hair locations: head, breast, back, abdomen, arms, and lower limbs. A report on the frequency of shaving was taken for each subject, the time intervals distributed, and numerical values assigned. The attempt here was to get an index of hair abundance in terms of the length of the hair, the denseness of its growth, and the area over which it was spread. Length was disregarded, of course, in rating the head hair. It is well to note that the shaving scores may not have been determined entirely by the abundance of the facial hair. Conceivably the frequency of shaving is influenced also by temperament, the color of the beard, and the rate of its growth.

Such hair ratings were made simultaneously and independently by Mr. Bell and the writer. The coefficients of reliability reported (Table 6) are, of course, the correlations between the ratings made by Mr. Bell and those made by the writer. They are ratings on 107 men at Hamline University.

To determine the pitch of the voice, aluminum disk recordings were made on an electrically driven, constant speed Pamograph. These recordings were made while the subject was reading ordinary speech material, as distinct from dramatic selections. The general pitch level of the recorded voice was then determined by a method of "spotting" suggested to the writer by Root (33). Using a freshly tuned piano and a newly conditioned and timed phonograph, the voices were reproduced and identified by ear with particular locations on the piano keyboard. The attempt was to isolate or judge the most frequently appearing pitch of the voice. The pitch values finally assigned were, of course, those of the particular points on the keyboard with which the voices had been identified.

The pitch levels were determined for the 96 University of Minne-

TABLE 7

AGE DISTRIBUTION AND RACIAL BACKGROUND OF THE MAIN EXPERIMENTAL GROUP: 204 COLLEGE MEN

Age distribution					
Age	f	Age	f	Age	f
16	1	22	13	28	0
17	4	23	4	29	0
18	34	24	5	30	0
19	58	25	3	31	1
20	42	26	0	32	0
21	37	27	1	33	1

Racial background*					
American	11	Finnish	1	Russian	1
Bohemian	1	French	18	Scandinavian	6
British	2	German	71	Scotch	30
Danish	7	Irish	32	Swedish	34
Dutch	5	Jewish	11	Swiss	2
English	71	Norwegian	36	Welsh	6
		Polish	1	Yankee	2

*Tabulation in terms of the frequency with which each nationality was mentioned.

TABLE 8

CORRELATIONS OF PHYSICAL MEASURE WITH AGE

	Body measures (N 204)		
Biacromial	+.05±.05	Intercrestal	+.19±.05
Bihumoral	+.04±.05	Intertrochanteric	+.02±.05
Upper circumference	+.08±.05	Lower circumference	+.06±.05
Height	—.08±.05		
	Hair scores (N 204)		
Head	—.19±.05	Arms	+.19±.05
Breast	+.22±.05	Back	+.07±.05
Abdomen	+.34±.04	Lower limbs	+.02±.05
Face	+.39±.04	Hair average	+.27±.04
	Pitch (N 96)		
Pitch 1*	—.05±.07		

*As spotted by Observer 1—Gilkinson.

sota students by Mr. Stromberg and also by the writer. Two spottings of the same records were made by both observers, with a time *interval of two months between the first and second spotting for* the writer, and an interval of about three weeks for Mr. Stromberg. A single spotting of an additional set of records for these voices was made by the writer. The reliability of these pitch scores is reported in Table 6. *Although the coefficients are not as high as for the other* physical measures, they are fairly satisfactory for group investigation.

TABLE 9

CORRELATIONS OF PHYSICAL MEASURES WITH HEIGHT

Biacromial	+.39±.04
Bihumoral	+.43±.04
Upper circumference	+.14±.05
Intercrestal	+.42±.04
Intertrochanteric	+.36±.04
Lower circumference	+.25±.04
Biacromial/Intercrestal	—.08±.05
Bihumoral/Intertrochanteric	—.14±.05
Uppercircumference/Lowercircumference	—.10±.05
Hair	—.03±.05
Pitch	*—.14±.07*

Tables 7, 8, and 9 present further information about the Main Experimental Group of 204 men from Hamline University and the University of Minnesota. About 90 per cent of the subjects were between the ages of 18 to 22, inclusively. They were very largely of northern European stock (Table 7). The negligible correlations between the anthropometric measures and age (Table 8) show that the group was mature in general bodily proportions. Coarse hair, particularly on the face and abdomen, continues to develop apparently after bodily maturity has been reached. The pitch level of the speaking voice does not vary with age in this group. All of the anthropometric measures, with the exception of the upper circumference, correlate significantly with height. None of the other physical measures correlates reliably with stature (Table 9).

SUMMARY

1. Hair abundance, hip and shoulder width, and the pitch level of the speaking voice are sex dimorphic traits.
2. They are probably dependent to some extent upon the primary sex glands for their normal development.
3. Anthropometric sex measures and hair ratings were secured from 204 college men, and for 96 members of this group the pitch level of the speaking voice was determined.
4. All of the physical measures were found to be sufficiently reliable for group investigation.

6. CORRELATIONS OF PHYSICAL MEASURES WITH MASCULINITY RATINGS AND *M-F* TEST SCORES

Physical Measures and Masculinity Ratings

Preliminary investigation gave rise to the antecedent expectation of a significant correlation between voice pitch and masculinity ratings. Since pitch was frequently mentioned in the free association descriptions of masculine and feminine personalities (Table 1), it is reasonable to suppose that the ratings were based in part upon the pitch level of the speaking voice.

This expectation is realized in the correlations derived for 110 men in the Main Experimental Group (Table 10). There is a significant relationship between Masculinity Ratings and Voice Pitch. It will be noted that the coefficient sign is minus, which is to be expected in view of the fact that high voice pitch is popularly regarded as an indication of femininity in the male (Table 1). None of the other correlations is significant, and there is very little reason for expecting them to be since hair abundance and shoulder width did not appear to be associated with masculinity in the personality descriptions.

TABLE 10

Correlations between Physical Measures and Personality Traits

Crudeness	
Crudeness vs. Hair average	+.19±.06
Crudeness vs. Pitch	—.13±.07
Crudeness vs. *Hip-shoulder ratio	—.07±.07
Masculinity	
Masculinity vs. Hair average	+.22±.06
Masculinity vs. Pitch	—.40±.06
Masculinity vs. *Hip-shoulder ratio	—.01±.07

*Average of three ratios:

1. Biacromial/Intercrestal.
2. Bihumoral/Intertrochanteric.
3. Upper circumference/Lower circumference.

Physical Measures and *M-F* Test Scores

The fact that one of the physical sex traits, pitch (possibly a psychosomatic trait), correlates significantly with masculinity ratings, and the fact that the ratings in turn correlate significantly with the *M-F* Test, leads to the expectation of a significant correlation between voice pitch and the *M-F* Test. It seems entirely reasonable to suppose, furthermore, that all of the physical traits are related to the psychological measure of masculinity, since both kinds of measures clearly show sex differences.

Nevertheless, the *M-F* Test scores and the body measures and ratings show a high degree of independence (Table 11). There is

TABLE 11

CORRELATIONS BETWEEN PHYSICAL MEASURES AND *M-F* TEST SCORES

	Hip and shoulder measures (20+ men)		Height constant
M-F Test vs.	Biacromial	+.11±.05	+.07±.05
” ”	Bihumoral	+.13±.05	+.09±.05
” ”	Upper circumference	+.15±.05	+.13±.05
” ”	Intercrestal	—.05±.05	+.11±.05
” ”	Intertrochanteric	+.11±.05	+.07±.05
” ”	Lower circumference	+.13±.05	+.10±.05
	Hip shoulder ratios (20+ men)		
M-F Test vs.	Biacromial/Intercrestal		+.14±.05
” ”	Bihumoral/Intertrochanteric		+.02±.05
” ”	Upper circumference/Lower circumference		+.06±.05
	Hair		Age constant
M-F Test vs.	Breast	+.13±.05	+.15±.05
” ”	Abdomen	+.12±.07	+.17±.07
” ”	Face	+.01±.05	+.05±.05
” ”	Back	+.11±.05	+.11±.05
” ”	Legs	.00±.05	.00±.05
” ”	Arms	+.11±.05	+.12±.05
” ”	Head	+.14±.05	+.13±.05
” ”	Average	+.10±.05	+.13±.05
	Pitch		
M-F Test vs.	1st spotting by Gilkinson		—.36±.06
” ”	2nd spotting by Gilkinson		—.28±.06
” ”	1st spotting by Stromberg		—.23±.06
” ”	2nd spotting by Stromberg		—.34±.06
” ”	Average of the four spottings		—.34±.06

some consistency in the coefficient signs; the correlations between the three shoulder measures and the test, and between hair ratings for all parts of the body, except the legs taken separately, and the test are positive, but low. None is statistically reliable. So also the signs for the coefficients of correlation between the hip-shoulder ratios and the test are positive, but low.

No such consistency of coefficient signs is present for the hip measures; only one of them is negative, whereas all should be according to the assumption that relative narrowness and smallness of the hips is the characteristic masculine condition. There is very little evidence of relationship between the hip and shoulder measures or the hair ratings and the *M-F* Test.

A moderate relation between pitch and the *M-F* Test is shown in these data. With one exception the correlations are statistically significant and they are in the expected direction, pitch being handled as femininity index in the statistical manipulations involved. In view of the rather low reliability of the voice records (Table 6), it seems probable that the relation is somewhat higher than the derived correlations indicate.

The *M-F* Test was found to correlate with a combined physical index +.38±.06. This latter index was computed as the average sigma value of: (1) The average of four pitch spottings, two by the writer and two by Stromberg, the plus and minus sigma values being reversed, producing a masculinity index; (2) the average hair abundance ratings for all parts of the body; (3) the average of three hip-shoulder ratios (see Table 10). Evidently the combination of the physical measures adds little or nothing to the correlation with the *M-F* Test, since pitch alone correlates with the *M-F* Test —.34±.06.

SUMMARY

1. There appears to be no significant relation between ratings for crudeness and secondary sex characteristics.

2. Pitch of the speaking voice correlates significantly with ratings for masculinity.

3. Anthropometric sex measures and hair ratings do not correlate significantly with the *M-F* Test scores.

4. There is a moderate relationship between voice pitch and the *M-F* Test.

7. INTERCORRELATIONS OF PHYSICAL SEX TRAITS

There is a thread of evidence running through the entire course of this investigation showing that voice pitch has some positive value as a sign of femininity in the male. High voice pitch is frequently mentioned in the physical descriptions of effeminate men (Table 1); pitch correlates negatively with ratings for masculinity in men (Table 10); and pitch correlates negatively with the *M-F* Test scores among men (Table 11).

On the other hand, there is little or no evidence that the other two secondary sex characteristics, hair abundance and shoulder width, are related either to the popular conception of masculinity or to masculinity of interests and attitudes as it is measured by the Stanford Attitude-Interest Analysis Test.

The results of the investigation up to this point do not seem to be internally consistent. All three of the somatic traits are sex dimorphic. Why then does one of them, pitch, correlate significantly with the *M-F* Test whereas the other two do not? On the assumption that "sex" is some-one-underlying-thing which "expresses" itself on the physical side in various secondary sex characteristics which can be regarded as having equivalent value as signs of sex, the results seem to be inconsistent. That assumption leads to the belief that if one of the somatic sex traits correlates significantly with the *M-F* Test, all of them should correlate significantly with the Test. The same assumption, however, also implies clearly that the physical traits should correlate highly with each other, being equally valuable indicators of "sex." That the basic assumption itself is not tenable is shown by the startlingly low intercorrelations among the three secondary sex traits (Table 12).

INTERCORRELATIONS

These coefficients of correlation present an impressive picture of independence among the physical secondary sex characteristics. Granting that no serious error has been made, particularly in the selection of physical dimensions, it is impossible to believe that these traits are reflecting the influence of the same biological factor.

Even the intratrait relations are not impressively high, and one cannot escape the suspicion that the moderately high correlations between the hip-shoulder ratios are a function in part of the close

TABLE 12

INTERCORRELATIONS OF PHYSICAL TRAITS*

Biacromial/Intercrestal vs. Bihumoral/Intertrochanteric	+.56±.03
Biacromial/Intercrestal vs. Upper Circumference/Lower circumference	+.54±.03
Bihumoral/Intertrochanteric vs. Upper circumference/Lower circumference	+.63±.03

			Hair			
	Face	Breast	Abdomen	Back	Arms	Legs
Face						
Breast	+.37±.04					
Abdomen	+.42±.05	+.73±.03				
Back	+.13±.05	+.50±.04	+.36±.05			
Arms	+.41±.04	+.54±.03	+.54±.03	+.43±.04		
Legs	+.31±.04	+.38±.04	+.40±.05	+.35±.04	+.51±.04	
Head	+.09±.05	+.07±.05	—.04±.05	+.13±.05	+.06±.05	+.19±.05

		Hair**	Pitch
Biacromial/Intercrestal		—.07±.05	—.22±.07
Bihumoral/Intertrochanteric		—.04±.05	—.11±.07
Upper circumference/Lower circumference		—.08±.05	—.01±.07
Biacromial		+.07±.05	—.14±.07
Bihumoral		+.12±.05	—.10±.07
Upper circumference		+.17±.05	—.05±.07
Intercrestal		+.24±.04	+.04±.07
Intertrochanteric		+.14±.05	—.05±.07
Lower circumference		+.22±.05	+.02±.07
Pitch vs. Hair	—.02±.07		

*Holding age and height constant would produce only slight changes in these correlations. (See Tables 8 and 9.)

**Average of hair scores for all parts of the body except the head.

anatomical proximity of the measures involved. It is needless perhaps to comment on the obvious fact that human beings as a class have a typical body form, and that the relation between these ratios may have causative reference to symmetry as well as to sex. A rather high degree of independence between hair abundance on the various parts of the body is also demonstrated. In considering this matter, it would be well to exclude the correlations reported for hair on the head in view of the very low reliability which the head hair ratings seem to possess (Table 6).

As regards the intertrait relationships there are only two correlations which reach statistical significance and they are low. It will be observed furthermore that the signs of the coefficients between hair abundance and the hip-shoulder measures are not consistent with theoretical expectations. Pitch, on the other hand, does exhibit signs in the expected direction, with the exception of the negative correlation between intertrochanteric hip width and pitch. This may be an exception to theoretical expectations, depending upon the validity of the assumption that masculinity in the male is expressed not only in broadness of the shoulders but also in relative narrowness of the hips. Consideration of the correlations reported in Table 13, however, throws considerable doubt upon this assumption.

TABLE 13

INTERCORRELATIONS OF HIP AND SHOULDER MEASURES AND RATIOS

Single measures		Height constant
Biacromial vs. Intercrestal	+.43±.04	+.32±.04
Bihumoral vs. Intertrochanteric	+.44±.04	+.35±.04
Upper circumference vs. Lower circumference	+.64±.03	+.63±.03
Ratios		
$\frac{\text{Intertrochanteric}}{\text{Intercrestal}}$ vs. $\frac{\text{Biacromial}}{\text{Intercrestal}}$		+.35±.04
$\frac{\text{Intertrochanteric}}{\text{Intercrestal}}$ vs. $\frac{\text{Bihumoral}}{\text{Intertrochanteric}}$		—.42±.04
$\frac{\text{Intertrochanteric}}{\text{Intercrestal}}$ vs. $\frac{\text{Upper circumference}}{\text{Lower circumference}}$		—.13±.05

It will be noted that among the single measures, hip and shoulder dimensions correlate positively. This fact does not seem to be consistent with the theory that in the male the two kinds of measures are subject to some unitary influence which stimulates the growth of the shoulders and at the same time restrains the growth of the hips. If such an influence were present, it seems likely that the correlations would be negative rather than positive.

One of the physical indices of femininity used by Ulvin (43) was the intertrochanteric/intercrestal ratio, demonstrated by her to be a striking sex dimorphic trait. It will be noted (Table 13) that there are two significant correlations between this "femininity" index and the hip-shoulder ratios, which are presumably "masculinity" indices. One of them is positive, and the other is negative, which is a curious result considered in the light of theoretical expectations.[1] If a wide hip flare and a large hip-shoulder ratio are to be regarded as signs of femininity and masculinity, respectively, in the male, and if both traits are subject in their growth to some unitary sex factor, they should correlate negatively in all instances. The fact that one of the correlations is positive, and that the hip and shoulder dimensions taken singly correlate positively, throws grave doubt upon the assumption that hip width and shoulder width are both sex conditioned (dependent upon the gonads) in the male.

Clinical Evidence

There is another line of evidence which points rather strongly to the independence of human secondary sex characteristics. Medical science has long recognized a pathological condition involving a degree of masculinization of the woman, technically referred to as "virilism." The term is defined as follows by Scott (35): "A condition occurring in females, characterized by hairiness of the face, body and extremities and by the development of male rather than female characteristics." The underlying pathology is presumably a tumorous condition of the kidney—suprarenal hypernephroma (5, p. 271). Immediate interest centers around the independent variation of sex traits shown in the clinical description of these cases.

1. Holmes (22) gives an excellently detailed description of a case of virilism. This individual, a young woman, was distinctly feminine in physical appearance until 17 years of age. Masculinization set in at this time and at the age of 24 a quite general sex reversal of traits had occurred. Menstruation ceased abruptly in the seventeenth year. During the nineteenth year hair appeared on the face, and two years later on the body. By the twenty-fourth year the pubic hair had extended upward and joined the breast hair. The musculature and body configuration were male-like, and the clitoris was large, the uterus was small. No pelvic abnormality was found, and the voice had not changed. The reader will observe the very notable absence of concomitant variation between the voice and other sex traits, especially hair. Surgical removal of the tumor was followed by a fairly rapid and seemingly complete restoration of female traits.

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[1] This result may be the function of correlating ratios having common measures.

2. Glynn (17) reports nine cases of young women with suprarenal tumors accompanied by male-like hair growth, usually accompanied by atrophy of the uterus and breasts, and *sometimes* accompanied by a lowering of the voice.

3. Harris-Liston (21) describes four bearded women who had been confined to an institution for the insane. Three of them were very advanced in age and perhaps should therefore be regarded as cases of virilescence. ["The assumption of male characteristics by an aged woman; the growth of a beard, the development of a manly voice on the part of a woman after the menopause" (Scott, 35).] Nevertheless, one of these three is described as being "womanly except for her beard and very hairy legs," and as having a very "strong passion for the male sex." The fourth woman, who was 36 years of age at the time of observation, had a fairly abundant hairgrowth on the face, although the menstruation was normal, or at least regular.

4. Ellis (13, p. 252) refers to the case of the bearded woman, Annie Jones, the "Esau Lady" of Virginia. Evidently she was carefully examined by German physicians and reported as being entirely feminine except for the beard, whiskers, moustache, and short male-like hair on the arms and hands. At the age of 26 this masculine hair growth was accompanied by a feminine face, feminine voice, elegant figure, feminine hands and feet, feminine external and internal genitalia.

5. Claiborne (8) describes two women who showed some tendency to sex reversal. The first is described as being " . . . a beautiful young woman whose mind was thoroughly masculine, with slight mammary development, on whose back, on each side just below the shoulder blades, grew a tuft of long dark hair; her voice was feminine and she had one child." The second is described as follows: " . . . a woman who is very small and has a male pelvis, is flat chested, feminine in intellect and voice, but masculine in facial expression, who is compelled to shave to keep her face clean." These cases do not involve such decided sex reversal as do some of the others described, but they do contain evidence of the *independent* variability of the so-called secondary sex characteristics.

These clinical cases give supplementary proof for the conclusion, already well established by the low order correlations *reported* in the present study, that human secondary sex characteristics vary with a high degree of independence. No doubt, in some instances the voice and hair do vary concomitantly in response to pathological conditions. This latter fact, however, in no way militates against the conclusion that the traits are relatively independent; the crucial point is that some underlying pathological condition can cause variation in one without affecting another.

In the opinion of the writer this independent variability of the physical sex traits removes the seeming inconsistency in the results of this investigation. Pitch of the voice varies independently with respect to hair abundance and shoulder width; therefore, it is entirely reasonable to find that it correlates significantly with a fourth measure (*M-F* Test) even though the other two physical traits exhibit no such relations.

SUMMARY

The intercorrelations of physical traits and case studies of virilism show that human secondary sex characteristics vary independently, quite completely so, with respect to each other.

8. DISCUSSION AND INTERPRETATION OF RESULTS

METHODOLOGICAL ERRORS

Before entering into a general discussion of the results, some consideration should be given to the possibility of serious methodological errors in the study, particularly in the selection of trait dimensions.

Trotter (42) found no difference between men and women, before or after puberty, in the number of hairs on the face. In the present study, a high hair rating was given when the hair was widespread, dense, and long. It is possible, therefore, that these ratings fail to isolate perfectly those characteristics of hair growth which are truly of a sexual character. Nevertheless, scantiness of hair has, in some cases at least, been observed to accompany the castrate condition of the human male, and abundance of hair is strikingly exhibited in the condition of virilismus among women.

The pitch scores used in the present study are fairly satisfactory, although they do not exhibit as high reliability as do the other physical measures. They are not machine measures; they are human auditory and judgmental reactions presumably to the "height" of the voice. The method does not exclude entirely the possible influence of voice quality. It may be that the individual who forces the heavy "chest" tones into the upper pitch range of his voice receives a somewhat lower pitch score than he would if his vocal habits were more nearly normal; most voices become "lighter" in quality as they move upward in the melody of speech and song (23). In the opinion of the present writer, it does not seem reasonable to suppose, however, that quality can obscure pitch to such an extent that the scores used in this study do not differentiate crudely at least between individuals on the basis of the latter voice characteristic.

The hip-shoulder measures used in this study are the same anatomically as those used by Ulvin (43). That investigator found that two of the measures—biacromial and bihumoral shoulder width—are sex dimorphic whether height is held constant or not. These two shoulder measures are larger in men than in women, both absolutely and relatively to height. The present writer has shown elsewhere (Table 13) that the hip measures correlate positively with the shoulder measures, a fact which may reasonably raise some doubt as to whether both kinds of measures are sex conditioned. However, these positive correlations do not force the conclusion that neither kind of measure is sex conditioned in the male.

In the opinion of the writer there is present no error in the selection of measures of a character serious enough to obscure entirely relationships among these various "sex" traits where such exist.

Relation of Pitch to Other Variants

Pitch is the only physical measure in the present study which correlates consistently with other measures. It correlates significantly with the *M-F* Test scores and with common judgments of masculinity. Although it does not correlate significantly with the other physical measures, its coefficient signs are usually negative.

The emergence of a reliable correlation between pitch and common judgments of masculinity is not surprising. It simply confirms what is generally recognized and what is evinced in the descriptions of masculine and feminine individuals (Table 1), namely, that there is in popular thinking an association of voice pitch with personality. The reliable correlation between pitch and the *M-F* Test scores is more difficult of interpretation. Possibly it may be accepted as evidence of the innate biological sex conditioning of the field of human interests and attitudes under consideration here. On the other hand, it should be borne in mind that at the present time we know little or nothing about the relations of voice to personality generally. The human voice is in part a functional phenomenon, and it is within the realm of possibility that what appears here to be a relation between sex conditioned laryngeal size and the *M-F* Test scores may be in part the function of a third psychological factor. On the other hand, it can perhaps be said with considerable confidence that, in an examination of existing evidence regarding the sex conditioning of peripheral male traits, pitch receives the clearest support of all. One would be reasonably disposed by this fact to regard the correlation between pitch and psychological masculinity as evidence of the sex conditioning of the latter. However, the halting manner with which psychosomatic correlations have emerged during the history of psychology and the difficulty which investigators have had in trying to verify claims as to the existence of such relations dictates that final interpretation must await: (1) The verification of the correlation through measures on other groups of subjects—possibly through the use of a machine measure of pitch; (2) the exhausting of all other possible interpretations.

The Independence of Physical Sex Traits

Voice pitch, hair abundance, and shoulder width—all of which are secondary sex characteristics—seem to vary quite independently with respect to each other.

Independence of variation among human physical traits is not new. Knowledge of it goes back almost to the mathematical elaboration by Pearson (6, p. 471) of Galton's technique of correlation. It received considerable attention from a number of writers (Lewenz and Whitely, Pearson, MacDonell, Fawcett) in the first volume of *Biometrika*. MacDonell reports there a correlation of only .18±.01 between head width and height (4, p. 181). In a 1914 publication, Thorndike (40, p. 339) speaks of stature in man as the over-all measurement of individual bone lengths and thicknesses which vary quite independently with respect to each other, and speaks of this independence of variation in terms of causative independence. In 1922 Lowell and Woodrow (28) reported correlations between carpal age and number of permanent teeth of +.20 and —.03 for seven-and-one-half-year-old girls and boys, respectively. Gates and others (16) also reported rather low correlations between carpal age and other physical measures. Harris (20) presented 29 correlations between height and other physical measures ranging from about +.90 to .00.

In view of what had been known about the rather extreme independence of some physical measures, the very low intercorrelations among secondary sex traits would not be surprising, were not some of us under the impression—and the very faulty one apparently—that "sex" is properly regarded as an entity, and that all the various physical dimorphisms identified with it have direct causative reference to some-one-underlying-thing. Some present-day biologists seem to be keenly aware of the complexity of this phenomenon—or better, these phenomena. Lillie (1, p. 1) has already been quoted in this study as saying that "sex is not a biological entity." He calls attention to the curious mixture of male and female traits which may appear in the intersex condition, and he stresses the point that the evolution of the gametes shows no parallel to the elaborate phylogenetic development of secondary sex traits. He says:

> It is as though variety and beauty had become ends in themselves in the evolution of secondary sex characters as exemplified in the plumage of birds, and in the strife and amenities of human social relations (1, p. 3).

Danforth (1, p. 43) speaks of partial sex conditioning, particularly of the musculature, although he seems to regard hair as being more definitely a sex trait. Koch (1, p. 382) thinks that there may be many factors underlying sex differentiation.

In modern biological literature one finds quite frequent reference to the interstitial cells of the gonads as the vital causative factor in the development of the male secondary sex characteristics (24, p. 1040; 44, p. 523; 26, p. 341; 18, p. 625; 9, p. 217; 15, p. 1059; 7; 19, p. 921). Not all of these writers commit themselves to the theory, but there does seem to be a fairly wide acceptance of it. The theory seems to rest essentially upon two facts: that gonad removal interferes with the normal development of the secondary sex traits, and that the destruction of the germinal epithelium of the gonads alone does not have such an effect. The interstitial cells and the secondary sex development seem to remain normal under conditions which result in atrophy of the seminiferous tubules. Certainly there is little in the theory which assists in accounting for the extreme independence of variation among the secondary sex characteristics. On the assumption that independent variation means causative independence, one must postulate multiple causation.

Let us examine the experimental set-up of the present study in terms of the independence of these physical traits. This is a psychobiological study interested primarily in possible relationships between a psychological measure of masculinity and certain physical measures of masculinity. We are interested essentially in two questions: (1) To what extent can personality in this case be predicted in terms of the physical measures taken singly and in combination? (2) What does the evidence show regarding the biological conditioning of human interests of the sort here measured?

As an answer to the first question it appears that there is not a sufficiently high correlation to permit individual prediction of the psychological measure in terms of the physical measures taken singly or in combination. The writer has not regarded it as feasible to search for optimal weights since two of the physical measures exhibit extremely low and statistically unreliable correlations with the *M-F* Test. It would seem that hair abundance and shoulder width fail for this reason to meet one of the requirements for eligibility to a combined index (25, p. 421).

It seems to the writer that the answer to the second question is not clear at the present time, the problem being in the interpretation of the negligible relations between the *M-F* Test scores and the two physical traits, hair abundance and shoulder width, and the failure of the somatic traits, including pitch, to correlate highly with each other. If causative independence must be postulated to explain the absence of correlation among the physical traits, then one must entertain the possibility of independent biological conditioning for the psychological trait, or traits, as well. In case of the failure of correlation to emerge between any given somatic trait and the *M-F* Test there are two possibilities of explanation: (1) The Test scores are a function of social environment; (2) the Test scores may be biologically conditioned to some extent, and the absence of relationship demonstrates the extreme independence which biological sex traits sometimes exhibit. The experimental set-up does not lend itself very well, therefore, to a ready interpretation of negative results.

There is some degree of parallelism between the theoretical set-up of the present study, in the light of the extreme independence of the somatic "sex" traits, and the biological implications of the low order correlations emerging between height and intelligence, particularly as they are interpreted by Paterson (30, p. 78). In commenting upon the independence of variation among those dimensions which go to make up stature, that writer says,

> One might well be justified in assuming that if stature itself be a resultant of many independently variable determiners then there is no genetic reason for the antecedent expectation that the determiners for physical segments of the body should be the same as those providing the potentialities for mental growth.

If one substitutes the word "sex" for "stature," "biological" for "genetic," "secondary sex traits" for "physical segments," and "masculinity of interests and attitudes" for "mental growth," the statement will now read as follows:

> One might well be justified in assuming that if sex itself be a resultant of many independently variable determiners then

> there is no biological reason for the antecedent expectation that *the determiners for secondary sex traits should be the same as* those providing the potentialities for masculinity of interests and attitudes.

And if Paterson's interpretation holds in the relation of intelligence to stature, how much more truly does it apply in the present situation where there is such extreme independence of variation on the physical side.

The construction of that writer is exceedingly important in clearing the ground for an interpretation of intelligence in terms of heredity. So also in the question of the biological conditioning of masculine "temperament," the independence of sex traits performs a similar function. The present writer wishes to be perfectly clear about this matter. He does not assert that independent variation proves the existence of biological conditioning of interests, but he does assert that it clears the way for that interpretation and that negative results in this sort of an experimental set-up have at present no very crucial bearing on the issue.

There may be ample evidence of the social conditioning of masculine interests. Terman, Miles, and Stone seem to lean toward that conclusion (1, p. 876). The data upon the basis of which their judgment is formed is as yet unpublished, so it is not profitable to discuss the general issue here. It seems quite reasonable to suppose, however, that social environment plays some part, and perhaps a major part, in the determination of the test scores.

THEORETICAL CONSIDERATIONS

Dunlap (12) presents a plan for social betterment upon which the results of the present study and current developments in biology have an interesting bearing. After discussing a number of physical traits such as stature, bodily proportions, hair, etc., that author makes the following statement:

> Human beauty, we have pointed out, is a sign of fitness for parenthood—fitness to propagate children who shall be, in a high degree, able to hold their own in the mental and physical *struggle with nature and with their human competitors.* It is the sign which is intuitively recognized by the race and upon which the process of sexual selection is based. It, therefore,

> is nothing superficial: it is the external appearance of germinal potentiality which is the most important of all things for society (12, p. 55).

It is Dunlap's opinion that responsibility rests upon social psychologists to lead the way in the "conservation of beauty."

The present writer is under the impression that Dunlap is not merely asserting that the child of handsome parents will inherit to some degree their physical traits and, the standards of physical beauty being what they are, will be more favorably received socially than they would be if less gifted physically. He seems to mean that one physical sex condition in an individual can be accurately judged in terms of another, and among those peripheral conditions which he presumes to be directly related to the germinal functions of the gonads he mentions hair and voice pitch.

Just what in the gonad carries the function of internal secretion has been long debated in biology (1, p. 290). The arguments favoring the view that the interstitial cells provide stimulation to the growth of the secondary sex characteristics seem to depend to a considerable extent upon the claim that the germinal epithelium is destroyed under conditions which do not affect the interstitial cells unfavorably (9, p. 217). Certainly the independent variation of the germinal function and the interstitial cells gives little support to the theory that germinal potentiality can be inferred from secondary sex characteristics such as hair, voice, etc. Furthermore, even if the germinal function could be identified with whatever glands of internal secretion are responsible for the development of secondary sex characteristics, the independent variation of the latter would raise the question as to which if any of them have any such predictive value as Dunlap implies.

One of the best-known claims of relationship between psychological and physical sex is that of Ellis (13). Inasmuch as the present study is not an investigation of homosexuality (1, p. 876), the results have only a remote bearing upon the issues raised by Ellis' observations. Data gathered at Stanford University, as yet unpublished, suggest that homosexuality, contrary to the opinion of Ellis, is determined to a large extent by environmental factors.

However, Ellis should not be placed among those who claim high order relations between personality and physical signs, as have

Kretchmer (27), Berman (3, p. 154), Claiborne (8), and possibly Stockard (36, p. 289). He appears to be in perfect agreement with Hirschfield when he says that bearded women "are scarcely ever inverted," that "the strongest reversals of secondary sexual characters less often accompany homosexuality than slighter modifications of these characters," that slight hypertrichosis "by no means necessarily indicates homosexuality" in women. He calls attention to the case of a man with a high voice whose sex behavior was normal (14, p. 200).

The emphasis placed by Ellis upon the slight reversals in somatic sex traits suggests that the psychosomatic relations which he claims to exist would be expressed as rather low correlations. At least they would be low unless "slighter modifications" can be distinguished from "strongest reversals" in a qualitative way and therefore be placed on a separate scale of measurement. Ellis also admits the influence of social environment in the determination of the behavior of the "mannish" woman, whom he distinguishes from the truly inverted woman. According to Ellis the latter's "only masculine element may, in the least degree, consist only in the fact that she makes advances to the women to whom she is attracted and treats all men in a cool, direct manner. . . . " (13, p. 222).

Claiborne (8) apparently regards the claims of Ellis as being too modest. He observes that hypertrichosis in women is accompanied by general masculinization. Cases described by him have been mentioned in Section 7. It would seem, however, that the cases which he describes merely add to the very considerable existing evidence showing what a peculiarly mixed-up individual the human being can be, and perhaps normally is, with respect to these so-called *physical signs of masculinity*.

General Summary

1. Popularly, high voice pitch is regarded as a sign of femininity and low voice pitch is regarded as a sign of masculinity.
2. The Stanford Attitude-Interest Analysis Test differentiates markedly between men and women. It is sufficiently reliable for the purpose of group investigation and varies independently with respect to intelligence and also with respect to age among college students.

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GENETIC PSYCHOLOGY MONOGRAPHS

Child Behavior, Animal Behavior, and Comparative Psychology

A PSYCHOLOGICAL STUDY OF FORTY UNMARRIED MOTHERS 155
By Ruth D. Nottingham

BEHAVIOR PROBLEMS IN THE CHILDREN OF PSYCHOTIC AND CRIMINAL PARENTS 229
By Lauretta Bender

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A PSYCHOLOGICAL STUDY OF FORTY UNMARRIED MOTHERS*

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The Ohio State University, Columbus, Ohio

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1. INTRODUCTION

Illegitimacy is as old as marital law, and in one form or another it has been a universal social phenomenon. Sex mores and marital regulations differ widely from period to period and from group to group at any given period. Among primitives a woman with an illegitimate child finds her possibilities for marriage enhanced, unchanged, or destroyed, depending upon the traditions of her tribe. In some cases, death for the mother is the result of breaking tribal laws; others accept the mother but destroy the babe; while in not a few the woman becomes a prize, her fertility having been demonstrated.

Christianity sought to stamp out once and for all premarital unchastity. The act was declared sinful and upon woman, the offending factor and fountain of all sin, came severe condemnation. Naturally, unbearable cruelty for the unmarried mother resulted in concealment, abortion, maternal mortality, and infanticide. A letter to Voltaire from Frederick the Great in the latter part of the eighteenth century states that the largest number of executions occurring in Germany were of girls who had killed their infants.

Conditions were but slightly improved until war time, when the vastness of the problem demanded governmental regulation. Hankins (10), in discussing this period, states in part:

> Little governmental care and protection of illegitimate children were manifested until the world war. In English speaking countries especially it was the rule for white mothers to abandon, give away or otherwise dispose of their illegitimate infants; colored mothers have generally followed the opposite course. While the mother's confinement was mollified by a restricted hospital service by rescue homes, such as the National Florence Crittenton Mission and the Salvation Army, and by Child Welfare, private maternity homes too often found profit in disposing of her infant to a baby farm or foster home where his life was likely to be short but harrowing. Foundling asylums, orphan homes, child placing agencies, maternity homes and similar agencies are now, however, increasingly subject to public licensing and inspection. Illegitimate children are viewed as future citizens, workers, and soldiers and as worthy as legitimates of training and care. The State is finding it advantageous both economically and culturally to assume official guardianship over them. Legislature, formerly concerned primarily with protecting the tax-payer, increasingly aims to keep mother and child together, to enforce paternal responsibility and to insure the health, protection and education of the child.

2. HISTORICAL RÉSUMÉ

While there has been no dearth of literature on the subject of illegitimacy, and cognizance of the child's inevitable problems of social adjustment have long been studied, surprisingly little has been done about the unmarried mother except to theorize about her and the causes which have been factors in her delinquency. There is nothing in literature which parallels our present research, although there are four studies which in certain phases are related to it.

Krammerer (12) in his study of 500 case histories of unmarried mothers was primarily interested in two phases of the problem. Causative factors, both internal and external, were his first concern, and he includes under this classification the following: bad environment, bad companions, recreational disadvantages, educational disadvantages, bad home conditions, sexual suggestibility, mental conflict, heredity, assault, incest, and rape. He emphasizes that none of these factors operates singly in a given case, and that an analysis of these forces which affect human behavior must by its very nature fail to indicate all of the complexities. Krammerer's second interest was in the question of the mother's relationship to her offspring, involving, as it does, her status before the law and the state's interest in the upbringing of her illegitimate child.

Guibord and Parker (8) studied 82 cases in an effort to determine what becomes of the unmarried mother. In part, their conclusions are as follows.

After a five-year period one-fifth of the group occupy social positions worse than at the time the experience came to them. From this it would appear that the incident of maternity without marriage had not played the havoc in the life of the individual that the accounts of novelists would lead us to expect. More than one-half of the cases inflicted visible and material injury on society. In so far as can be judged from outward signs and in so far as effect upon persons can be compared with effects upon society, it would appear for this group at least that motherhood without marriage had more disastrous import for society than for the mother herself.

McClure and Goldberg (15) in 1929 studied the intelligence of 87 unmarried mothers in a rescue home. Briefly, the results of this study were: CA range, 13-14 years; range of IQ, 38-109; median IQ, 76; mean IQ, 77.09.

Continuing this study, McClure (14) reports a study of 77 unmarried mothers with an IQ range of 53-107, median IQ of 76, and a mean IQ of 79.07.

3. PROBLEM AND METHOD

The problem of this study is to determine by direct investigation the mental ability, school achievement, personality make-up, vocational interests, attitudes, social, economic, and religious background of 40 unmarried mothers.[1]

The subjects for this study were 40 unmarried mothers who were residents of the Florence Crittenton Home of Columbus, Ohio, during the period from autumn of 1934 to autumn of 1935. An effort was made to examine each girl shortly after admittance (a week usually elapsed, giving time for adjustment to the Home) and while pregnant.[2] This seemed advisable for a number of reasons: (1) There are more factors constant in the life of the pregnant girl than in that of the girl whose baby is here, since for the latter departure is only a few weeks distant and with that come the problems of keeping or adopting her child, of facing family attitudes, of meeting old acquaintances, and the ever-present worry of employment. (2) If the report and suggestions are to be available to the Home for presentation in court and for vocational guidance, the examination must have been completed during pregnancy. (3) The Home's routine for the pregnant girl is such that a testing program fits more easily into her schedule than into that of the delivered girl. While this last consideration is not of paramount consequence, nevertheless its importance becomes evident in an extensive research of the nature of this one.

Twelve tests and forms were employed in the study, in an effort to gain as complete a picture as possible of each girl. The tests and forms divide themselves into five groups, as follows:

Intelligence Tests:
- Stanford Revision of the Binet-Simon Scale
- Morgan Test (Form *A*)
- Seguin Form-Board Test
- Healy Pictorial Completion II

Educational Tests:
- Metropolitan Achievement Tests (consisting of nine tests)

---

[1] This study is a part of a more extensive research which is in progress at the Florence Crittenton Home, Columbus, Ohio.

[2] There were nine exceptions: Nos. 1, 3, 4, 5, 8, 12, 15, 21, who had been delivered before the testing program was under way, and No. 22 who delivered within a few hours of admittance.

(Advanced Battery, Complete Form *A*)
Ohio Literacy Test

Interest and Personality Forms:

Pressey Interest-Attitude Test
Kent-Rosanoff Association Test
Bernreuter Personality Inventory
Brown Personality Inventory for Children

Vocational Interest:

Strong Vocational Blank for Women

Socio-Economic Status:

Sims Score Sheet for Socio-Economic Status

4. TESTS

In the selection of these tests four desiderata were present: (1) the tests should give as complete a picture as possible of each girl with special reference to subsequent vocational guidance; (2) the tests should be short enough to be administered at a single sitting without undue fatigue;[3] (3) the tests should have been standardized previously on a normal group; and (4) the top and bottom limits, or the range of each test, should be adequate to meet the varied requirements of this group. To be specific a school achievement test with norms ranging from the 8th to the 12th grades would not qualify since several of the subjects have achievement scores below the 8th-grade level. A brief account of each test or form follows.

STANFORD REVISION OF THE SIMON-BINET SCALE

The Stanford-Binet Scale is so well known and so widely used that any discussion of it seems superfluous. Garrett (7) in writing about it states: "After twenty years of revision, criticism, discussion, and experimentation, it is today still the prototype of the best modern scales for measuring general intelligence." Burt (4) has well said that there is as yet no other method available, at once surpassing it in simplicity, equalling it in accuracy, or approaching it in prestige. The standardized instructions were used.

MORGAN TEST

The Morgan Test (Form *A*) is a group intelligence test and the responses are in writing. This form is self-administering and requires forty minutes to administer.

No published study of the reliability of the Morgan Test could be found. However, Brown (3) in an unpublished study states:

> Dr. Growden, of the Ohio State Bureau of Juvenile Research, found a correlation of +.814±.0109 between Morgan's test and the Stanford-Binet test. This correlation was obtained from the results of 500 cases examined at the Bureau, the two tests having been administered at practically the same time. The subjects were of various ages; all, however, were children or

---

[3] The Metropolitan Achievement Series was an exception; it was administered in four separate sittings each of approximately one hour's duration, on four consecutive days.

adolescents. In 69.4 per cent of these cases the variation in mental ages between the two tests was not more than one year. Of these 45.6 per cent varied under six months.

SEGUIN FORM-BOARD

This test consists of a formboard and 10 removable blocks. The standard instructions were used (1).

While this test, because of its very simplicity, does not have the age discrimination which some of the more complicated tests do, still the examiner felt that it possessed value beyond the mere score (1) as an initial test to establish rapport and (2) as a means to observe the subject approach and solve a simple problem. Thus the examiner early detected good or poor coordination, clumsiness, ambidexterity, nervousness, indifference, etc.

HEALY PICTORIAL COMPLETION II

This test is composed of a series of 11 pictures (one of which is for demonstration), which represent a sequence of situations or events occurring during a day in the life of the boy who is depicted in each picture. Each picture must be completed by the selection of a small illustration, 60 of which accompany the test. The test pictures represent situations planned to be of varying degrees of difficulty of solution. The standard directions were used.

Healy (11) states:

> Surely the capacity for putting two and two together in the realm of thought, the ability to turn things over in the mind, to rationalize about perceptual material with what may be drawn from the ideational and other memory stores of the mind is of the very essence of intelligence and of great importance to civilization. . . . The most common failures, then, are directly perceptual and inferential in character, involving faulty observation or faulty reasoning concerning objects and phenomena universally known.

Eccles (5) in his study of some 500 delinquent boys states:

> Some investigators feel that success in the Healy Pictorial Completion II correlates with social adjustment. Others regard it as a test of special ability. It probably is not a test of intelligence level.

METROPOLITAN ACHIEVEMENT SERIES

The Metropolitan Achievement Tests (Advanced Battery Form *A*) consists of nine separate tests including Reading, Vocabulary, Arithmetic Fundamentals, Arithmetic Problems, English (language usage, punctuation and capitalization, and grammar), Literature, History and Civics, Geography, and Spelling. The entire series covers 32 pages and requires four hours to administer. This period is divided into four almost equal intervals, thereby lessening the possibility of fatigue. Any effort to study the school achievement of unmarried mothers encounters difficulties, for instance, (1) the impossibility of contacting school principals to verify records (the very fact that a girl is in a rescue home makes this impossible); (2) the inability to find a test which will at the same time give valid results for a girl who has been out of school three months and one who has been out eight years; (3) the problem of finding a test which will descend to the level of the lowest girl and at the same time give a true measure of the highest girl; (4) the vain hope of trying to locate a test which can be equally fair to the girl from a recognized school system and the girl who comes from a one-room school.

One recognizes at once that some of these problems are beyond the realm of tests. However, the Metropolitan Achievement Tests (Advanced Battery Form *A*) seems to be better adapted to meet the needs of this group than any other school achievement test which could be found. The range of this battery is from 5th to 12th grades.

No record could be found in the literature reporting a study in which this battery of tests was used.

OHIO LITERACY TEST

The Ohio Literacy is a five-minute, written, group test. It consists of a series of 50 questions to be answered by underlining either "yes" or "no." There is a sample on the front of the testing sheet which is read by the examiner and scored by the subjects. The time is counted from the time that the page is turned.

This test was selected as one of the series primarily because of its school-grade placement possibilities. If this test correlates highly with the Metropolitan Achievement Tests it would have many advantages over the longer series, for example, initial cost, cost in scoring, and time in administering.

PRESSEY INTEREST-ATTITUDE TEST

The Pressey Interest-Attitude Test is made up of a series of four separate tests. Each test has ninety words presented in serial form. Test I directions are:

> Below is a list of things which some people think are wrong—that some people think a person ought not to do or is to be blamed for. Place a cross (X) on the dotted line in front of everything YOU think is wrong. Place two crosses (XX) in front of everything which you think is VERY WRONG—that a person is very much to be blamed for. You may mark as many or as few words as you wish. But be sure to mark everything which you think is wrong—that a person is to be blamed for.

Test II has the same construction and instructions except that an (X) is placed in front of everything about which YOU worry, or feel fearful or anxious, and (XX) in front of everything about which you worry VERY MUCH. . . . . about which you are VERY fearful or anxious.

Test III is the same except that it is concerned with things which people like or in which they are interested.

Test IV has a list of words which describe people and the (X) is placed in front of every word that describes the kind of person whom YOU like or admire.

Pressey states that the reliability for the entire examination has been found for single grades to vary from .94 to .96.

KENT-ROSANOFF ASSOCIATION TEST

This test is a veteran among association tests. It consists of 100 standard stimulus words. Each word is presented to the subject after she has been instructed to respond as quickly as possible with the first single word which comes into her mind. The examiner records the word, codes the time interval, and proceeds to the next stimulus word. This test has been standardized upon 1000 normal individuals. The purpose of including this test in the series is to determine whether or not the associations of these unmarried mothers differ from those of a normal group.

BERNREUTER PERSONALITY INVENTORY

The Bernreuter Personality Inventory is a questionnaire of 125 items to be answered by encircling one of three responses: "yes," "no," and "?." It is scored in six ways to secure (1) a measure of neurotic tendency, (2) a measure of self-sufficiency, (3) a measure of introversion-extraversion, (4) a measure of dominance-submission, (5) a measure of confidence, and (6) a measure of sociality. (Norms have not been published for high school girls for Nos. 5 and 6.)

Stagner (18), studying the validity and reliability of the Bernreuter Personality Inventory, states:

> The *Personality Inventory developed from the assumption* that an answer to a given question might have diagnostic value for more than one personality trait, and that by means of a weighted scoring scheme it might be possible to take advantage of this fact. The scoring weights for the different items were determined on the basis of the success with which a particular answer differentiated two groups who were designated as extremely high and extremely low in the trait designated.
>
> The preliminary validation, that is, the method of selecting the criterion groups, assumed the validity of four previously standardized personality tests, viz., the Thurstone Neurotic Inventory, the Bernreuter Self-Sufficiency scale, the Laird *C2* inventory and the Allport *A.S.* standard. The score value for each of the different items was then determined by the differences in answers by people scoring very high or very low on these tests. No further validation was made by Bernreuter except to correlate the scores on the inventory with scores on *these criterion tests for a few cases.* The uncorrected coefficients for these validation correlations are .91, .86, .69, .67 and .82 according to the *manual.*

Stagner's method of investigating validity assumed that the interview would enable one to reach an approximate conclusion about the personality of the subject, especially since the conversation was centered about the topic of personality. Subjects were 230 freshmen at the University of Wisconsin. Stagner's conclusions on validity are:

> *B_1-N.* Scale has high validity. Scores in the upper percentiles (above 90) apparently are invariably associated with some degree of maladjustment of importance. Scores below

> 90 are also important in some cases. The test is not, of course, proof against the human tendency to falsify, either consciously or unconsciously. Low scores seem quite uniformly to go with excellent adjustment. About the middle of the distribution no statement can be made.
>
> B_2-S: This scale measures one aspect of what used to be *called introversion. High scores are always associated with a* certain independence (mainly intellectual in these cases) and low scores with a tendency to dislike solitude, lean on others, etc. The validity seems high throughout the distribution.
>
> B_3-I. This scale is another measure of neurotic tendency. It does not contribute significantly to our understanding of the total personality beyond what is indicated by the other tests.
>
> B_4-D. This scale picks out with considerable accuracy students who were likely to be ascendant, dominant or aggressive in social situations. It measures to a certain extent poise, self-possession and self-expressiveness. The high negative correlation with neurosis is probably excessive, being such in many cases as to mask the aggressive tendency. The correlation of the two criterion tests, A-S Thurstone is —.35 to —.51. Bernreuter gives the correlation of B_1-N and B_4-D as —.87.
>
> The validities of the B_1-N and B_2-S scales are probably as high as can be hoped for with present techniques. B_4-D is somewhat inferior. B_3-I might, in our opinion, be omitted from the test without lowering its usefulness.

Farnsworth (6) reports a study of Bernreuter Profiles in which he says in conclusion:

> As the Bernreuter Personality Inventory has come into quite extensive use, it seemed wise to find the profiles to be expected of relatively normal groups. This was accomplished by dividing the percentile scores into 3 classes: 0-33 constituted Class 1, 34-66 Class 2, 67-100 Class 3. Thus a profile of N_1, S_3, I_1, D_3, the most common profiles, indicates extreme stability (low score on the neurotic scale), extreme self-sufficiency (high score on the self-sufficiency scale), extroversion (low score on the introversion scale) and extreme social dominance (high score on the dominance scale) . . . The modal profiles N_1, S_3, I_1, D_3, secondary modes were found to be N_3, S_1, I_3, D_1; N_1, S_2, I_1, D_3; and N_3, S_2, I_3, D_1.

Brotemarkle (2), discussing what the Bernreuter Personality Inventory does not measure, states:

In no case does it measure

1. Scholastic aptitude
2. Fundamental mental abilities
3. Complex mental processes
4. Judgment
5. Verbal discrimination
6. Common sense
7. Visual concrete learning capacity
8. *General informational* content
9. Motor control or coordination
10. Ideational content of moral concepts in emotional responses.

Mathews (13), studying 60 boys of good and bad behavior, used the Bernreuter Personality Inventory. The percentiles on the Inventory were:

	Good behavior group	Poor behavior group	Differences
Neurosis	47.2	52.1	—4.9
Self-sufficiency	39.3	49.9	—10.6
Introversion	42.2	46.4	—4.2
Dominance	38.4	49.4	—11.0

Brown Personality Inventory for Children

This inventory consists of 100 questions to be scored by encircling either "yes" or "no." Brown (3) records the following correlations: Inventory and CA, +.009±.03; Inventory and MA, —.111±.03; Inventory and IQ, +.013±.03; Inventory and socio-economic, —.116±.003.

Strong Vocational Blank for Women

This eight-page form has separate sections on Occupations, Amusements, Activities, Peculiarities of People, Order of Preference of Activities, Comparison of Interest between Two Items, Rating Present Abilities and Characteristics, and School Subjects.

This form is just off the press and the only two scoring sheets which would be applicable to our group are the Masculinity-Femininity and Nursing ratings. The other available scales are concerned with professions which are beyond the scope of our group both scholastically and financially (for example, lawyer, librarian, physician, and high school teacher for various subjects).

SIMS SCORE SHEET FOR SOCIO-ECONOMIC STATUS

This form consists of 23 questions, involving such factors as occupation and education of the parents, mother's activities outside the home, *possession of a telephone, automobile, furnace, books, and* magazines, participation in community activities, and room-person ratio. The reliability of the entire score card is +.95±.01.

Symonds (20) in evaluating this scale states that: "The care, thoroughness, and soundness of method used in constructing this scale make it the most valid method available at present for determining socio-economic level."

5. DATA AND DISCUSSION

FINDINGS FROM PERSONAL HISTORIES

It seems advisable before the presentation of the test findings to give a few facts from the histories of the unmarried mothers studied.

STABILITY OF HOMES

	No.	Percentage
Unbroken	16	40
Broken		
Death		
Mother	12	
Father	3	45
Mother and Father	3	
Divorce	6	15

OCCUPATION OF FATHER (17)

Group	No.
I. Professional men	0
II. Managerial service and professions of a lower order than Group I	
1. High school teacher	
2. Large-scale fruit and cattle farmer	
III. Artisan proprietors, trades, and skilled laborers with managerial responsibility	16
1. Brick plant foreman	
2. Clerk (dry goods)	
3. Conductor (R.R.)	
4. Engineer (R.R.)	
5. Farmer (8)	
6. Grocer	
7. Restaurant owner (3)	
IV. Skilled laborers and small trade owners	17
1. Baker	
2. Blacksmith	
3. Carpenter	
4. Garage Mechanic (4)	
5. Miner (4)	
6. Painter (2)	
7. Saw mill worker	
8. Steel mill worker (2)	
9. Toolmaker	

V. *Unskilled laborers, peddlers, and vendors*	5

1. Bus driver
2. Iceman
3. Laborer
4. Laborer (stone quarry)
5. Teamster

Occupation of Girls at Time of Pregnancy

Not employed		16
Home	10	
School	6	
Factory work		2
Housework		14
Laundry		1
Office work		2
Teaching		1
Waitress		4

Home Distribution

City	15
Small town	16
Country	9

Church Affiliation

Baptist	2	Congregational	1
Brethren	2	Evangelical	2
Carmelite	1	Lutheran	2
Catholic	5	Methodist	10
Christian	2	Nazarene	1
Church of Christ	3	Presbyterian	7
No Church	1		

Club Membership

Camp Fire	1	Girl Reserve	5
Church Clubs	3	Girl Scouts	3
Community Club	1	Glee Clubs	4
4-H	4	School Clubs	4
Membership in no organization	15		

Number of Children in the Family

No. of children	Frequency	Percentage
1	1	2.5
2	2	5.0
3	11	27.5
4	7	17.5
5	5	12.5
6	5	12.5
7	5	12.5
8	3	7.5
9	1	2.5

POSITION OF GIRLS IN FAMILY GROUP

Oldest child in family	17
Youngest child in family	5

The following is a summary of the personal histories:

1. More than 50 per cent of the homes from which these girls come were broken either by death or divorce.
2. The occupations of the fathers vary widely from a high school teacher to a day laborer. Farming has the highest frequency, and mining the next highest.
3. More than 50 per cent of the girls were employed at the time of pregnancy, and of this number more than half were doing housework.
4. Fewer girls in this study are from the country than from small towns and cities.
5. With but a single exception all of the subjects have church connections.
6. More than 50 per cent of the group belong to some sort of organized club or group.
7. Families vary from one child to nine children, the mode being in the family with three children. The highest frequencies of this type of delinquency fall in families of three to seven children.

INTELLIGENCE LEVEL

Table 1 gives the Stanford-Binet scores for the 40 unmarried mothers studied. Examining the content of the table one notes the following facts:

CA range	15-25 years
CA mean	19 years
CA median	19 years

The mental age records on this same table show:

MA range	10.0-17.7 years
MA mean	14 years
MA median	14 years

Figure 1 presents the chronological and mental age frequency. Ages by years are plotted on the ordinates, and frequencies on the abscissas. The mental ages are shaded diagonally and the chronological ages are lined in black as indicated in the key. It is interesting

TABLE 1

RESULTS OF THE STANFORD-BINET SCALE

No.	CA	MA	IQ
1	19	11.9	74
2	17	11.7	72
3	16	15.1	94
4	16	10.3	64
5	17	10.0	62
6	16	12.2	76
7	19	15.8	99
8	21	12.6	79
9	18	15.3	95
10	21	13.8	86
11	20	16.7	104
12	23	16.0	100
13	17	17.1	106
14	16	14.7	91
15	19	17.7	110
16	21	13.7	85
17	21	14.0	87
18	18	16.2	101
19	20	15.6	97
20	25	14.2	89
21	18	17.6	105
22	17	15.1	94
23	21	12.1	75
24	19	15.8	98
25	23	11.8	73
26	23	14.9	93
27	19	16.6	103
28	20	13.5	84
29	16	12.2	76
30	19	13.9	87
31	16	13.3	83
32	19	15.2	94
33	22	13.8	86
34	15	13.8	90
35	20	10.9	68
36	18	10.1	63
37	20	13.3	84
38	20	10.4	65
39	16	14.0	87
40	21	16.7	104
Range	15-25	10.0-17.7	62-110
Mean	19.05	14	87
Median	19	14	87

to note in reference to the chronological age that 17.5 per cent of the group are between 16-17 years, while 47.5 per cent fall between 19-22 years. We further note that, of the 40 girls, 8, or 20 per cent, of

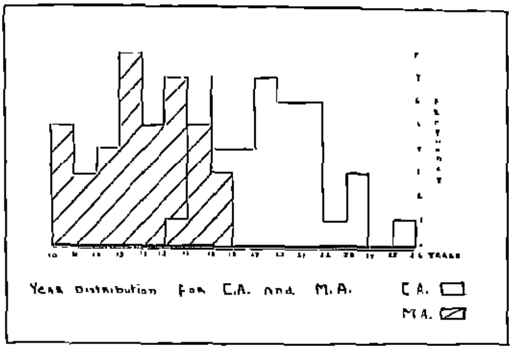

FIGURE 1

the group are below the 12-year level mentally, while there are 8, or 20 per cent, in the normal adult level. It is interesting to observe that there are only three years of overlapping (15, 16, 17 years) of the chronological and the mental ages. However, there is a five-year variation between the mean and the median of the chronological ages, both of which are 19 years, and the mean and median of the mental ages both of which are 14 years.

Table 1 lists the intelligence quotients of the 40 girls, which may be further analyzed as follows:

IQ range	62-110
IQ mean	87
IQ median	87

Table 2 presents the frequency and percentage of the IQ's of the 40 girls.

Note that 30 per cent of the group are in the low, or 60-79 IQ

TABLE 2

FREQUENCY AND PERCENTAGE OF THE IQ'S OF THE STANFORD-BINET SCALE

IQ	Frequency	Percentage
60-69	5	12.5
70-79	7	17.5
80-89	10	25.0
90-99	10	25.0
100-109	7	17.5
110-119	1	2.5

divisions, while 50 per cent are in the central or 80-89 IQ sections. Thus 20 per cent fell into the high or above 100 IQ grouping.

Table 3 lists the IQ distribution on four separate studies using the Stanford-Binet scale. The classifications are Terman's (21). Figure 2 presents these same data, and has the five classifications of intelligence (imbecile, feebleminded, borderline, dull-normal, and normal) plotted on the ordinates and the percentages plotted on the abscissas. The unshaded and the diagonal, horizontal, and vertical rulings show

TABLE 3

IQ DISTRIBUTIONS OF THE STANFORD-BINET SCALE FOR FOUR SEPARATE STUDIES

IQ	Guibord & Parker (1922) Percentage	McClure & Goldberg (1929) Percentage	McClure (1932) Percentage	Present study Percentage
Normal 90-100	12.6	19.0	22.1	45.0
Dull-normal 80-89	26.7	26.2	15.6	25.0
Borderline 70-79	28.1	23.8	38.9	17.5
Feebleminded 50-69	32.3	27.4	23.4	12.5
Imbecile 25-49	00.0	3.6	00.0	00.0

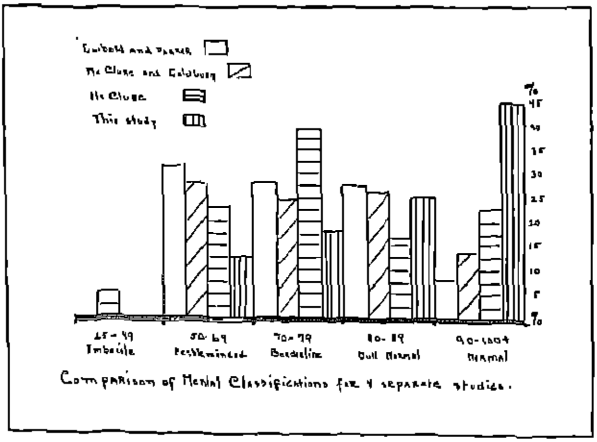

FIGURE 2

the distributions of the four studies in relation to these mental classifications. Thus the graph shows that the present study (noting *the horizontal lines*) has none in the imbecile grouping, approximately 12 per cent in the feebleminded, 17 per cent in the borderline grouping, 25 per cent in the dull-normal, and 45 per cent in the normal.

The study of Guibord and Parker (8) places over 60 per cent in the borderline and feebleminded groupings, with only 12 per cent in the normal groupings. Their study, however, was of a very select group of unmarried mothers, since they studied only "mental problems." Naturally the normal girl was not included in their study. McClure and Goldberg (15) found that more than 50 per cent of their subjects were within the limits of the borderline and feebleminded groupings, while a slightly higher percentage, 19 per cent, were in the normal group. McClure's (14) findings placed over 60 per cent in the borderline and feebleminded classifications and 22 per cent in the normal. Contrary to all expectations, the results of the present study places 30 per cent in the borderline and feebleminded groupings, and 45 per cent in the normal group. There is, thus, a wide variance in the results of the four studies. A possible explanation for Guibord and Parker's results has been previously suggested. McClure and Goldberg (15) and McClure (14) give no explanation in their studies as to the method of the selection of their subjects beyond the mere statement that the subjects were unmarried mothers from a rescue home. This opens several possibilities any one of which might explain the widely varying results. For example, if the girls were court cases and had been examined to supply the court with records, one would have in the main the lower portion of any rescue home's population. Or if, as is often the case, the clinician sees only the "problem girl" or the "mental case," the group would be a very select one. Still another possibility is that the study was concerned with a different type of rescue home, perchance one which cares for the girl only for delivery and convalescence, one which is entirely clinical and, as a result, draws upon the lower strata of society. Or there is the possibility that the group of girls using the Crittenton Homes at present are from a level of society which before the economic depression would have cared for their daughters privately. It is to be emphasized again that our cases were selected only to the extent of being in the home.

TABLE 4
RESULTS ON THE MORGAN TEST FORM *A*

No.	Score	MA
1	53	10.7
2	81	14.0
3	73	12.9
4	42	9.8
5	53	10.7
6	90	15.1
7	109	16.8
8	59	11.3
9	132	19.0
10	75	13.5
11	124	18.4
12	112	17.3
13	118	17.9
14	107	16.8
15	115	17.9
16	66	12.4
17	59	11.3
18	111	17.3
19	69	12.4
20	99	15.7
21	122	18.4
22	89	14.6
23	92	15.1
24	101	16.2
25	75	13.5
26	111	17.3
27	88	14.6
28	86	14.6
29	66	12.4
30	82	14.0
31	72	12.9
32	111	17.3
33	78	13.5
34	60	11.8
35	28	8.8
36	43	9.8
37	89	14.6
38	50	10.7
39	90	15.1
40	141	19+
Range		8.8-19+
Median		14.6
Mean		14.4

Table 4 records the Morgan Test scores and mental ages for the 40 unmarried mothers. Some of the findings are:

MA range	8.8-19+ years
MA mean	14.4 years
MA median	14.6 years

The MA's on the Morgan Test have a wider range than on the Binet scale. The lowest MA on the Binet scale is 10.0 years, while the lowest on the Morgan is 8.8 years. The highest on the Binet is 17.7 years and on the Morgan 19+. However, they compare fairly closely on the mean and median, Binet's being 14 years for both while Morgan's is 14.4 and 14.6 years, respectively.

The MA distribution for the Ohio Literacy Test is recorded in Table 5 (this table has the same method of construction as Table 4), including:

MA range	8-18 years
MA mean	13 years
MA median	14 years

The Ohio Literacy MA's have a wider range than the Binet and a narrower range than the Morgan. The means vary from 13 years (Ohio Literacy) to 14.4 years (Morgan Test). The medians for all three tests are within the 14-year level.

Figure 3 presents the MA distribution by years for the three tests, Binet, Morgan, and Ohio Literacy. The mental ages by years are plotted on the ordinates and the number frequency of the distributions are placed on the abscissas. The vertical lines represent the Morgan distribution, horizontal lines the Binet, and the cross-barred ruling the Ohio Literacy distribution.

Table 6 presents the results of the Seguin Form-Board. The fact that the maximum mental age of this test is 14 years limits its possibilities. In construction this table resembles the previously discussed tables except that instead of scores this table records the time in seconds required to complete the test. Thus, if the reader is concerned with the results of Subject 5 on this test, he would note that she has a time score of 13 seconds and a mental age of 13 years. However, the table shows:

MA range	11-14 years
MA mean	13.3 years
MA median	13.5 years

In spite of the fact that the range is so limited and the maximum so low, the means and the medians are within approximately one year

TABLE 5
SCORES AND MA ON THE OHIO LITERACY TEST

No.	Score	MA
1	22	10
2	26	11
3	26	11
4	25	11
5	22	10
6	25	11
7	30	14
8	33	15
9	38	17
10	30	14
11	32	14
12	24	11
13	24	11
14	31	14
15	36	17
16	34	16
17	22	10
18	36	17
19	30	14
20	31	14
21	37	17
22	36	17
23	22	10
24	35	16
25	28	12
26	31	14
27	37	17
28	34	16
29	31	14
30	26	11
31	31	14
32	35	16
33	33	15
34	32	14
35	19	8
36	30	14
37	31	14
38	21	9
39	26	11
40	40	18
Range		8-18
Mean		13
Median		14

of the means and medians of the Binet and Morgan tests. As mentioned before, this test was used mainly to establish rapport and because one gains certain knowledge of vocational value in watching a subject approach and perform it.

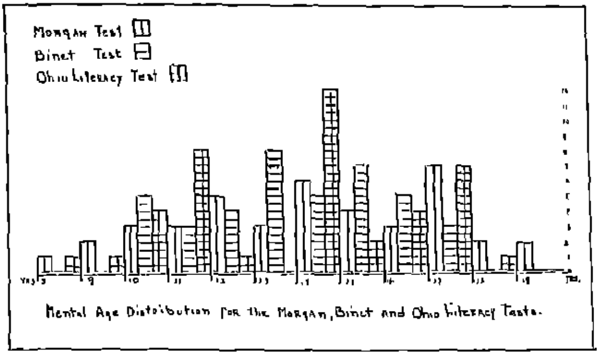

FIGURE 3

The mental-age records on the Healy Pictorial Completion II are presented in Table 7. This test has a maximum mental age of 16 years. According to this test, 37.5 per cent of the group are of normal intelligence and 10 per cent are between the 14- and 16-year level. On the surface this would seem to agree fairly closely with the distributions on the previously discussed tests. However, this is not the case, for, while the gross distributions are comparable, the actual positions of the individual girls differ widely. A comparison of the mental ages on the six lowest scores on this test with the same individual's scores upon the Binet and Morgan tests will make this clear. Thus for Subject 1 the mental ages, or MA's, on the Binet and Morgan tests vary less than 1½ years, while on the Healy there is a variance of more than 5 years. Subject 18 has a Binet and Morgan mental age of above 16 years, while Healy has an MA of 5 years. Further, Subject 2 has a mental age of 11.7 years and 14.0 years, respectively, on the Binet and Morgan and a 6-year

Subject No.	Healy II MA	Binet MA	Morgan MA
1	5	11.9	10.7
18	5	16.2	17.3
2	6	11.7	14.0
30	6	13.9	14.0
24	7	15.8	16.2
34	7	13.8	11.8

TABLE 6

RESULTS OF THE SEGUIN FORM-BOARD

No.	Time in sec.	MA*
1	11	14
2	12	13
3	11	14
4	14	12
5	13	13
6	10	14
7	12	13
8	12	13
9	12	13
10	12	13
11	10	14
12	15	11
13	13	13
14	10	14
15	11	14
16	9	14
17	9	14
18	9	14
19	8	14
20	12	13
21	11	14
22	11	14
23	15	11
24	13	13
25	11	14
26	12	13
27	11	14
28	11	14
29	12	13
30	11	14
31	11	14
32	12	13
33	14	12
34	14	12
35	11	14
36	14	12
37	12	13
38	12	13
39	10	14
40	11	14
Range		11-14 years
Mean		13.3 years
Median		13.5 years

*Fourteen is the maximum mental age.

TABLE 7
RESULTS ON THE HEALY PICTORIAL COMPLETION II

No.	MA*	No.	MA
1	5	21	10
2	6	22	13
3	14	23	16
4	15	24	7
5	11	25	10
6	11	26	16
7	16	27	14
8	11	28	16
9	16	29	16
10	9	30	6
11	16	31	13
12	10	32	15
13	9	33	16
14	16	34	7
15	16	35	11
16	9	36	16
17	16	37	9
18	5	38	16
19	16	39	10
20	11	40	16
Range			5-16
Mean			12.2
Median			13

*Sixteen is the maximum mental age.

mental age on the Healy. This would seem to confirm the statement previously quoted (5) that there is evidence that the Healy Pictorial Completion II does not measure intelligence.

Summarizing the intelligence level of this group, we find that:

1. The chronological age ranges from 15 years to 25 years, with an average of 19 years.
2. *The mental ages range from 5 years to 19+ on the five tests.* The Morgan Test has the widest range of mental ages from 8.8 years to 19+ years. The mean mental ages for the five tests vary less than two years, Binet having a mean of 14 years, Morgan 14.4 years, Ohio Literacy 13.0 years, Seguin Form-Board 13.3 years, and Healy Completion II, 12.2 years. The medians are as follows: Binet 14 years, Morgan 14.6 years, Ohio Literacy 14 years, Seguin 13.5 years, and Healy Completion II, 13.0 years.
3. Binet scores give the following distribution on mental classifications: 45 per cent normal, 25 per cent dull average, 18 per cent borderline, and 12 per cent feebleminded (moron).

TABLE 8

SCORES* ON THE METROPOLITAN ACHIEVEMENT TESTS: ADVANCED BATTERY, COMPLETE

	Reading		Arithmetic				Hist. &				
No.	Compr. 1	Vocab. 2	Fund. 3	Prob. 4	Eng. 5	Lit. 6	Civics 7	Geog. 8	Spell. 9	Total av.	School grade**
1	7.7	7.2	7.7	5.10	6.9	6.5	7.5	6.8	7.2	7.1	8
2	7.7	6.1	7.4	7.10	6.6	7.6	7.9	8.2	9.7	7.7	9
3	9.0	8.5	7.8	8.7	8.6	8.10	8.1	7.10	9.6	8.6	8
4	6.1	6.1	5.6	6.9	7.1	7.2	7.3	6.10	6.4	6.6	5
5	6.2	6.6	6.8	7.7	7.7	7.7	7.2	7.5	7.6	7.2	8
6	8.8	7.8	8.2	7.9	8.10	7.8	8.4	7.10	9.6	8.4	10
7	9.2	10.4	7.4	9.5	9.9	9.10	9.9	9.3	8.6	9.4	12
8	7.7	6.10	6.3	7.7	8.3	8.7	8.5	7.1	9.7	7.7	8
9	11.8	10.2	9.9	9.6	10.6	10.7	10.8	9.2	10.5	10.4	12
10	7.5	6.5	6.1	8.4	7.8	7.5	7.5	7.9	6.10	7.4	8
11	9.9	9.10	7.10	10.3	9.10	8.1	7.8	8.3	10.2	9.2	11
12	8.8	8.6	6.10	9.6	8.6	7.7	7.8	8.4	6.5	8.1	11
13	10.4	10.1	6.10	8.7	9.8	9.2	9.9	8.7	10.3	9.3	11
14	8.7	8.8	8.1	9.8	9.3	8.2	8.10	8.7	8.3	8.8	10
15	10.2	10.10	6.2	6.4	8.8	9.10	8.5	7.3	9.10	8.7	10
16	7.10	7.10	6.2	6.10	8.3	7.5	7.5	6.5	7.7	7.4	9
17	6.4	7.1	6.3	6.2	8.2	6.9	7.5	7.2	6.9	7.0	10
18	9.3	10.1	10.2	10.9	9.9	9.7	11.5	9.4	10.9	10.2	12
19	8.5	8.5	5.8	6.6	7.8	7.7	7.7	8.4	8.9	7.8	12
20	7.9	8.10	6.7	7.7	7.6	9.6	9.4	7.3	9.1	8.4	12
21	10.10	11.5	8.6	11.1	9.9	9.7	11.5	9.4	9.9	10.3	12
22	9.2	10.2	7.7	8.8	9.9	9.9	9.6	8.10	10.3	9.4	12
23	6.9	5.10	6.3	7.2	7.4	5.2	7.9	10.2	8.2	7.3	9
24	9.5	9.3	6.1	8.8	8.1	7.9	10.3	9.9	9.8	8.9	12
25	7.8	7.8	6.3	6.10	7.9	7.3	8.3	7.8	7.7	7.5	10
26	8.3	9.3	6.8	8.5	8.8	7.10	8.4	7.5	9.9	8.4	11
27	8.4	8.3	7.3	6.9	8.10	8.6	7.10	6.10	8.1	8.0	10
28	7.1	8.2	5.6	7.5	8.5	8.8	8.3	8.4	9.1	7.9	12
29	6.4	6.9	6.2	6.10	6.3	6.9	6.9	7.6	6.1	6.7	9
30	8.7	7.9	6.7	6.7	7.9	8.2	8.2	6.10	7.6	7.7	12
31	7.7	7.4	5.8	7.2	6.3	7.5	7.10	7.3	6.7	7.1	8
32	11.2	9.6	7.2	8.4	9.6	9.10	9.10	8.7	7.9	9.2	12
33	7.9	8.2	6.1	6.2	7.5	8.2	8.7	8.2	9.1	6.8	10
34	8.7	8.6	7.1	7.5	6.8	9.3	6.5	5.7	7.6	7.5	8
35	5.5	5.4	5.4	5.7	5.8	5.1	6.3	5.9	5.7	5.6	8
36	5.8	6.3	5.5	6.2	6.8	6.5	7.1	7.3	6.10	6.5	7
37	8.10	10.2	5.6	7.2	9.1	9.1	8.4	7.5	10.1	8.5	12
38	5.8	6.2	5.7	6.6	6.1	6.8	6.10	6.4	6.3	6.3	6
39	7.2	8.1	6.4	6.3	7.4	8.3	7.8	7.2	8.5	7.5	10
40	10.8	10.4	10.2	10.8	10.5	9.7	11.2	10.7	10.8	10.6	14
Mean	8.3	8.3	6.9	7.9	8.3	8.2	8.5	7.9	8.5	8.1	10

*Scores are in terms of school grades.

School Achievement

In Table 8 we find the scores for each of the nine units on the Metropolitan Achievement Tests. These nine units consist of two tests in reading, Comprehension and Vocabulary; two tests in arithmetic, Fundamentals and Problems; and one test each in English, Literature, History and Civics, Geography, and Spelling. Column 11 gives the total average grade, while Column 12 supplies the actual school grade completed by each subject. All scores are in terms *of school grades.*[1] *Arithmetic (fundamentals) has the lowest average* grade, namely 6.9, while history and spelling share the highest position, 8.5. The table also shows:

Achievement range	5.6-10.6 grades
Achievement mean	8.1 grades
Achievement median	7.9 grades

Since no reference could be found in the literature in which a group had been studied using this series of tests, any comparisons of performances are impossible. Nevertheless it is evident that the results of this test do not give an adequate picture of the achievement of this group. For example, No. 18 comes from a centralized high school. She placed first for her county in competitive tests in history *and placed sixth in her state. She has a school placement of 10.2* (she has in reality finished high school) and in history a grade placement of 11.5. No. 21 has just completed high school and has been an honor student for two years in one of Columbus' largest schools, her average being 10.3 No. 40 has completed normal school and yet has an average grade placement of 10.6.

Table 9 shows the grade placement for the 40 girls on the Metro*politan Achievement, Morgan, Ohio Literacy, Pressey, and the actual*

	Range
Metropolitan	5.6-10.6 grades
Morgan	3.9-16.4 grades
Ohio Literacy	4 -12 grades
Pressey	5 -15 grades
Actual grade	5 -14 grades

---

[1] The rather unusual method of recording grades as 5.10 or 7.10 rather than 6.0 or 8.0 is the procedure employed by the makers of the Metropolitan Achievement Tests.

TABLE 9

Grade Placement on Metropolitan Achievement Tests, Morgan Test, Ohio Literacy, Pressey Interest-Attitude, and Actual School Grade

No.	Metropolitan Achievement	Morgan	Ohio Literacy	Pressey Int.-Att.	Actual grade
1	7.1	5.5	5	7	8
2	7.7	8.8	7	7	9
3	8.6	7.7	7	10	8
4	6.6	4.7	6	7	5
5	7.2	5.5	5	8	8
6	8.4	9.9	6	9	10
7	9.4	11.6	8	12	12
8	7.7	6.0	9	11	8
9	10.4	14.9	12	12	12
10	7.4	8.3	8	9	8
11	9.2	13.4	9	11	11
12	8.1	12.2	6	10	11
13	9.3	12.7	6	11	11
14	8.8	11.6	9	11	10
15	8.7	12.7	12	10	10
16	7.4	7.1	11	12	9
17	7.0	6.0	5	6	10
18	10.2	12.2	12	13	12
19	7.8	7.1	8	11	12
20	8.4	10.5	9	8	12
21	10.3	13.4	12	9	12
22	9.4	9.4	12	11	12
23	7.3	9.9	5	5	9
24	8.9	11.1	11	15	12
25	7.5	8.3	7	9	10
26	8.4	12.2	9	8	11
27	8.0	9.4	12	10	10
28	7.9	9.4	10	6	12
29	6.7	7.1	9	6	9
30	7.7	8.8	7	7	12
31	7.1	7.7	9	8	8
32	9.2	12.2	11	11	12
33	7.8	8.3	9	10	10
34	7.5	6.6	9	10	8
35	5.6	3.9	4	8	8
36	6.5	4.7	8	8	7
37	8.5	9.4	9	10	12
38	6.3	5.5	5	6	6
39	7.5	9.9	7	10	10
40	10.6	16.4	12	15	14
Range	5.6-10.6	3.9-16.4	4-12	5-15	5-14
Mean	8.1	9.5	8	9.1	10
Median	7.9	9.4	9	10.0	10

school grade attained. The range for each of the four tests and actual school attainment are shown on page 185. The range for these same tests has been arranged according to frequency in Table 10. In this table one notes that the Metropolitan series covers 6 grades, the Morgan 14 grades, the Ohio Literacy 9 grades, the Pressey 11 grades, and the actual grade attained 10. If one considers only the range of grades, the Pressey approaches more nearly than any of the others the actual school placement. The Morgan shows the widest scattering from 3rd to 16th grades.

TABLE 10

FREQUENCY DISTRIBUTION OF GRADE PLACEMENT ON FOUR DIFFERENT SCALES AND ACTUAL GRADE ACHIEVED

Grade	Metropolitan Ahievement	Morgan	Ohio Literacy	Pressey Int.-Att.	Actual grade
3		1			
4		2	1		
5	1	3	5	1	1
6	4	3	4	4	1
7	16	5	5	4	1
8	10	5	4	6	8
9	5	7	10	4	4
10	4	1	1	9	8
11		3	3	6	4
12		6	7	3	12
13		2		1	
14		1			1
15				2	1
16		1			

Returning to Table 9 one finds the following distribution of means on the various tests:

	Mean
Metropolitan series	8.1 grade
Morgan	9.5 grade
Ohio Literacy	8.0 grade
Pressey	9.1 grade
Actual grade	10.0 grade

It is to be noted that the means vary from 8th to 10th grades. The means for the Morgan and Pressey tests being 9th grade, or one year lower than the mean for actual school placement. The means for the Metropolitan and Ohio Literacy are 8.1 grade and 8th grade, respectively, two years lower than actual grade placement. This same table gives the results for medians as follows:

	Median
Metropolitan series	7.9 grade
Morgan	9.4 grade
Ohio Literacy	9.0 grade
Pressey	9.0 grade
Actual grade	10.0 grade

The medians vary from 7th to 10th grades. The median for the Pressey test corresponds to that of the actual school grade, namely 10th, while the medians for the Morgan and Ohio Literacy are 9.4 grade and 9th grade. The Metropolitan series has a median of 7.9.

Summarizing the school placement of the 40 subjects of this study we note that:

1. The actual *grade attained by the group averaged 10th grade*, while the range of school attainment was from 5th to sophomore year of college.
2. The means on the four grade-placement tests vary only one year and are 8th grade for Metropolitan series and Ohio Literacy *and 9th grade for the Morgan and* Pressey tests.
3. The median for the Metropolitan series is approximately 8th grade (actually 7.9) and 9th grade for the other three tests.
4. The actual grade achievement is approximately one year lower than the actual grade attained.
5. Arithmetic averages are the lowest, while history and spelling have the highest scores.

INTEREST AND PERSONALITY FINDINGS

The Pressey Interest-Attitude Test was the only test used to measure emotional maturity. Table 11 shows the results of this test and records the emotional age for each girl. Column 1 presents the subjects' numbers, Columns 2, 3, 4, and 5 the individual scores for the four separate portions of the test, Column 6 gives the total scores, and Column 7 the emotional ages in years for all 40 subjects. Thus we find that Subject 1 rated 31, 23, 11, and 22,

TABLE 11
RESULTS OF THE PRESSEY INTEREST-ATTITUDE TEST

No.	I	II	III	IV	Score	Emotional age
1	31	23	11	22	87	14.0
2	33	23	25	14	95	13.5
3	36	1	1	4	42	15.5
4	30	21	18	17	86	14.0
5	41	2	4	31	78	14.0
6	37	6	10	2	55	15.0
7	22	— 4	— 4	+ 6	20	17.5
8	21	6	5	— 3	29	16.5
9	15	3	6	—10	14	18.0
10	25	18	7	4	54	15.0
11	25	— 2	5	— 5	23	17.0
12	9	2	17	8	36	16.0
13	22	32	9	—38	25	17.0
14	26	6	0	— 8	24	17.0
15	42	2	7	—16	35	16.5
16	12	2	0	2	16	18.0
17	70	34	4	0	108	13.0
18	— 3	— 6	7	10	8	18.5
19	32	1	1	—11	23	17.0
20	34	37	12	— 9	74	14.0
21	15	49	11	—16	59	14.5
22	21	6	2	— 1	28	16.5
23	46	74	14	28	162	11.0
24	23	— 1	— 2	—29	— 9	20.5
25	25	20	7	10	62	14.5
26	61	9	0	— 4	66	14.5
27	19	21	3	— 2	41	16.0
28	24	48	31	16	119	12.5
29	51	30	6	40	127	12.0
30	48	51	5	— 1	103	13.5
31	24	10	16	16	66	14.5
32	10	4	12	— 2	24	17.0
33	12	20	2	8	42	15.5
34	36	3	8	— 4	43	15.5
35	65	5	3	— 7	66	14.5
36	28	25	10	15	78	14.0
37	40	7	17	—21	43	15.5
38	34	51	20	29	134	12.0
39	23	8	9	2	42	15.5
40	5	7	5	—30	—13	21.0
	EA[*] Range				11.0-21.0	
	EA Mean				15.4	
	EA Median				15.5	

[*] EA signifies emotional age.

respectively, on the four portions of the test, and that she has a total of 87 and an emotional age of 14.0 years.

The year distribution for chronological, mental, and emotional

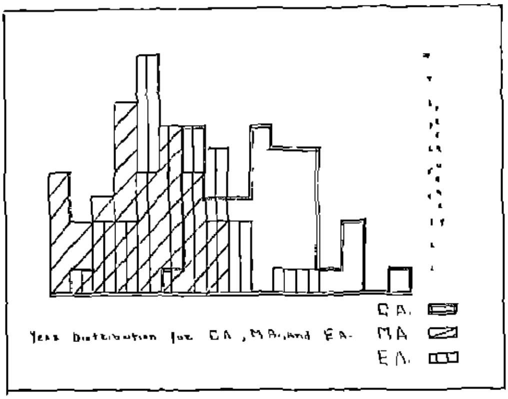

FIGURE 4

ages is shown in Figure 4. The chronological ages are distinguished by the employment of double lines of black, the mental ages by the use of diagonal lines, and the emotional ages by the vertical.

Interestingly enough this test places 40 per cent of the group above the 16-year level of emotional maturity, 42.5 per cent between 14 and 16 years, and only 18 per cent below the 14-year level. Comparing this with the mental age distribution, one notes that the emotional age of the group is noticeably higher than the mental age. The range of the emotional age is greater than the range of the mental age (MA Binet, 10-17 years; EA Pressey, 11.0-21.0 years). The EA mean is greater by 1 year than the MA mean and the EA median is 1.5 years higher than the MA median.[6]

Table 12 records the word frequencies for the seven classifications of the Kent-Rosanoff Association Test for each of the 40 subjects. As previously stated, Kent-Rosanoff (16) standardized their association test upon 1000 normal adults. All responses obtained were arranged in frequency tables for the stimulus words. Each response was classified under one of the following categories:

"0" If a response was not recorded on the frequency table.

"?" If a response was not given in identical form but a grammatical variant of the word was recorded.

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[6] Word frequencies have been worked out for the 360 separate words but have not been included in this study because of the difficulties of comparison in connection with so varied a group of subjects.

TABLE 12

Frequency Table for the Kent-Rosanoff Association Test

0	?	1	2-5	6-15	16-100	Over 100
9	3	3	8	9	31	37
12	2	3	10	6	21	46
12	6	2	3	12	27	38
3	8	3	6	7	26	47
24	0	3	5	8	25	35
11	1	3	1	7	33	44
7	0	4	10	16	31	33
17	3	3	7	11	28	31
7	4	4	12	16	32	25
6	0	1	5	4	30	54
17	2	4	10	7	24	36
15	0	3	10	7	27	38
3	0	0	5	17	24	41
8	1	2	4	5	34	46
7	1	4	10	12	22	44
14	2	4	9	12	20	39
13	0	4	7	11	17	48
9	1	2	11	12	34	31
7	1	4	3	6	35	44
10	6	1	13	20	29	21
11	2	6	10	16	24	31
4	0	3	4	5	30	54
26	1	4	9	15	26	19
13	1	2	4	14	26	40
12	2	5	7	10	32	32
7	0	1	1	7	26	58
9	0	1	7	12	28	43
11	0	1	9	12	28	39
9	1	3	8	9	23	47
12	0	3	12	15	30	28
5	1	2	5	11	27	49
13	1	2	9	12	33	30
7	2	1	6	5	30	49
14	3	3	4	12	22	42
27	0	4	8	11	26	24
23	1	10	20	19	24	3
17	2	4	13	13	29	32
8	0	5	5	9	29	44
20	0	1	2	4	25	48
3	0	1	7	6	28	55

"1" If the word had a frequency of 1 on the frequency table.

"2-5" If the word had a frequency of from 2 to 5 on the frequency table.

"6-15" If the word had a frequency of from 6 to 15 on the frequency table.

"16-100" If the word had a frequency of from 16 to 100 on the frequency table.

"Above 100" If the word had a frequency of more than 100 on the frequency table.

The scores for each girl were graphed individually. Transillumination of the graphs seemed to separate the curves into three groups. Thirty-two of the curves followed fairly closely the normal Kent-Rosanoff distribution, six had a high frequency of zero classification, while two failed to comply with the curves of either Groups 1 or 2. Figure 5 demonstrates these three curves.

It is to be noted that the seven frequency classifications are plotted

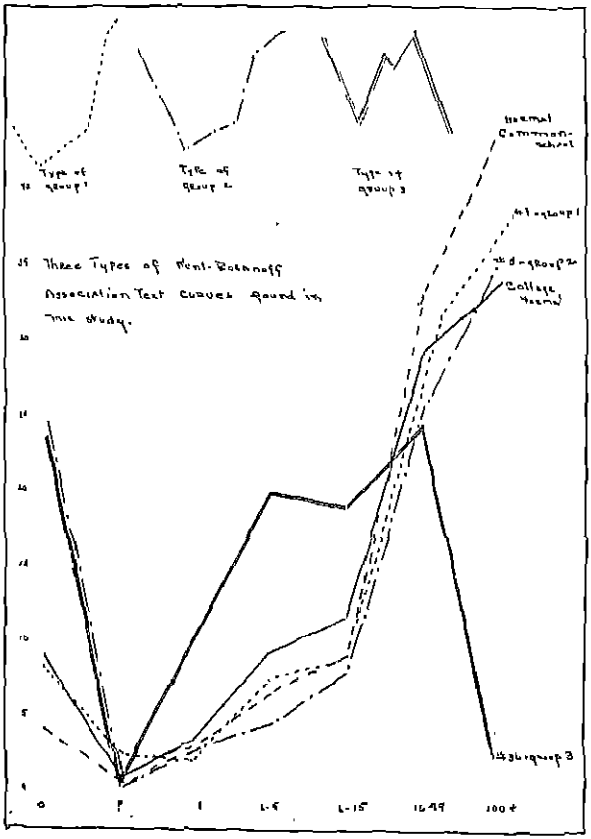
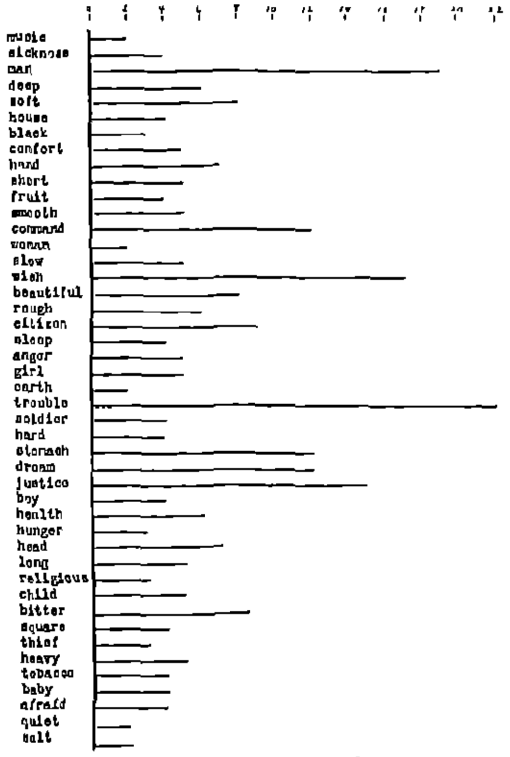


FIGURE 5

along the x axis, while the percentages are recorded on the y axis. The long dash lines for common-school females and the solid line for college females are the Kent-Rosanoff normal curves. The short dash line, following the normal curve, presents a typical Group 1 curve; the dash-dot line, varying in zero frequencies from the normal, is a typical Group 2 curve; while the double-solid line shows the curve of Group 3 which varies widely from the normal curve. The individual curves of Groups 2 and 3 will be discussed later in their relation to the Bernreuter Personality Inventory findings. Since the literature has no reference to a study of unmarried mothers in which



Frequency of "Block" words on the Kent-Rosanoff Test

FIGURE 6

TABLE 13

RESULTS OF THE BERNREUTER PERSONALITY INVENTORY

No.	Percentiles B_1N	 B_2S	 B_3I	 B_4D	F_1C score*	F_2S score*
1	12	86	82	78	—65	—1
2	66	71	74	26	—6	+31
3	3	87	2	86	—142	—17
4	72	35	70	23	+25	—61
5	17	72	21	84	—93	—14
6	33	38	40	31	+44	—163
7	65	22	42	5	+80	—72
8	82	20	66	23	+124	—60
9	22	3	12	71	—92	+72
10	48	57	54	26	+31	—72
11	55	75	50	41	0	+9
12	74	13	72	43	+55	—85
13	42	89	46	44	+10	+22
14	39	27	14	32	—14	—118
15	35	39	43	83	—7	—51
16	45	28	29	32	+15	—97
17	56	43	53	30	+35	—43
18	82	78	77	17	+91	+64
19	45	63	42	32	+2	—101
20	99	32	99	6	+230	+54
21	49	56	40	16	+18	—36
22	71	42	69	20	+103	—58
23	81	4	72	3	+120	—130
24	3	28	3	78	—68	—131
25	74	22	70	5	+139	—123
26	19	92	11	59	—77	+37
27	2	63	11	80	—85	—90
28	63	19	58	35	+44	—88
29	2	25	2	4	—152	+2
30	7	38	12	74	—52	—133
31	69	75	62	74	—62	+28
32	76	85	73	71	+49	+41
33	53	63	62	44	+5	—9
34	99	69	99	29	+172	+81
35	7	72	3	78	—134	+4
36	88	11	84	10	+70	—2
37	4	91	9	90	—121	+13
38	73	6	58	29	+41	—75
39	69	22	73	53	+81	—57
40	2	67	6	72	—138	—136

*Norms for F_1C and F_2S are not published for high school girls.

the Kent-Rosanoff Association Test was used, no comparisons can be made. One of the interesting if not valuable results of the test was a series of "block" words and their frequencies. By "block" word we mean that upon presentation of a stimulus word the subject "blocks" or "freezes" and either has no response or has a retarded response. Of the 100 stimulus words of the series, 45 were "block" words two or more times. The seven words with largest "blocked" frequencies are man, command, wish, trouble, stomach, dream, and justice. Figure 6 shows the frequencies of the 45 "block" words.

Table 13 records the results of the Bernreuter Personality Inventory. Column 1 gives the numbers of the 40 subjects; Column 2, or the B_1N, the neurotic percentile; three, or B_2S, the self-suffi*ciency percentile; four, or* B_3I, *the introversion-extroversion* percentile; five, or B_4D, the dominance-submission percentile; six, or F_1C, the confidence score; and seven, or F_2S, the sociability score. The norms for the last two classifications have not been published for high school girls. The range on B_1N and B_3N is from 99 percentile to the 2nd percentile, on B_2S it is from 92 to the 3rd percentile, and on B_4D from 90 to 3rd percentiles. Farnsworth (6) *in his studies of profiles in connection with this inventory divides* the percentiles into three classes in the following manner:

Percentiles 1-33 become Class I
Percentiles 34-36 become Class II
Percentiles 67-100 become Class III

Farnsworth found a modal profile for normal subjects of

$$N_1\ S_3\ I_1\ D_3,$$

and secondary profiles of

$$N_3\ S_1\ I_3\ D_1$$
$$N_1\ S_2\ F_1\ D_3$$
$$N_3\ S_2\ I_3\ D_1.$$

The percentile scores for this study were converted into Farnsworth's classes and recorded in Table 14. Figure 7 presents the profiles for the 40 subjects. The modal profile is inked in double lines ($N_1\ S_3\ I_1\ D_2$), and the secondary profiles in dash lines (N_3 $S_1\ I_3\ D_1$) and in dash-dot lines ($N_2\ S_2\ I_2\ D_1$).

It is to be noted that the modal profile is the same in both studies, and also that the first of the secondary profiles agrees.

Farnsworth in evaluating this $N_1\ S_3\ I_1\ D_3$ profile states in part:

> $N_1\ S_3\ I_1\ D_3$ indicates extreme stability (low scores on the neurotic scale), extreme self-sufficiency (high scores on the self-sufficiency scale), extroversion (low scores on the introversion scale), and extreme social dominance (high scores on the dominance scale).

TABLE 14
RESULTS ON THE BERNREUTER PERSONALITY INVENTORY USING THE FARNSWORTH CLASS METHOD

No.	B_1N	B_2S	B_3I	B_4D
1	1	3	3	3
2	2	3	3	1
3	1	3	1	3
4	3	2	3	1
5	1	3	1	3
6	1	2	2	1
7	2	1	2	1
8	3	1	2	1
9	1	1	1	3
10	2	2	2	3
11	2	3	2	2
12	3	1	3	2
13	2	3	2	2
14	2	1	1	1
15	2	2	2	3
16	2	1	1	1
17	2	2	2	1
18	3	3	3	1
19	2	2	2	1
20	3	1	3	1
21	2	2	2	1
22	3	2	3	1
23	3	1	3	1
24	1	1	1	3
25	3	1	3	1
26	1	3	1	2
27	1	2	1	3
28	2	1	2	2
29	1	1	1	1
30	1	2	1	3
31	3	3	2	3
32	3	3	3	3
33	2	2	2	2
34	3	3	3	1
35	1	3	1	3
36	3	1	3	1
37	1	3	1	3
38	3	1	2	1
39	3	1	3	2
40	1	3	1	3

Figure 8 shows the Kent-Rosanoff curves for the five subjects who have the N_1 S_3 I_1 D_3 profile.

An examination of this figure shows that Subject 3 has a curve on the Kent-Rosanoff test which follows fairly closely the normal curve (or the curves of Group 7.) Her rating on the Brown In-

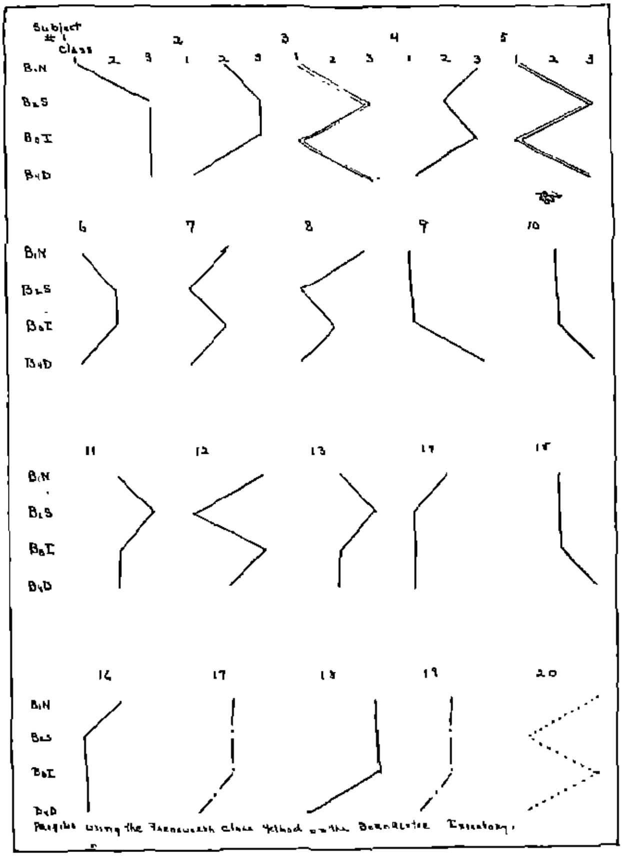


FIGURE 7*a*

ventory is "excellent," thus both tests place her in the well-adjusted grouping. Subject 5 has a curve on Kent-Rosanoff which is high in zero frequencies (Group 2) and a Brown rating of "good." This is not as complete an agreement between the three scales as is found in the scores of Subject 5. No. 35 has a curve belonging to Group 2 on the Association Test and a Brown rating of "excellent," while No. 40 has a normal Kent-Rosanoff curve (Group 1) and a Brown rating of "good." Thus in every case in which the Bernreuter

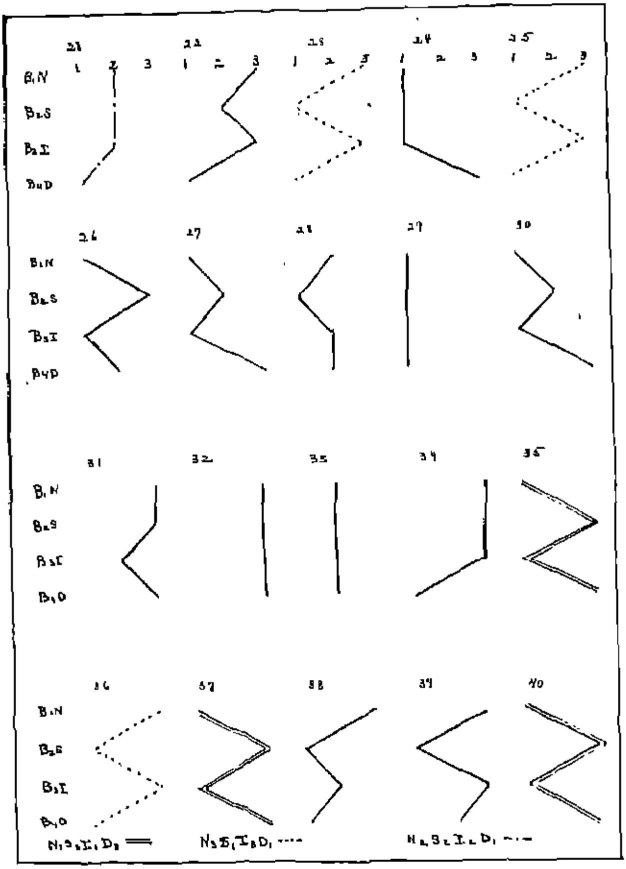


FIGURE 7b

places the subject in the well-adjusted grouping, the Brown has a rating of either "excellent" or "good." At the same time, the Kent-Rosanoff agreement is not so consistent.

However, if one scrutinizes the results presented in Figure 9, which are the maladjusted ones according to the Bernreuter scale, one finds that in every case the Kent-Rosanoff curve deviates from the normal, while the Brown ratings are consistently "poor" or "very poor."

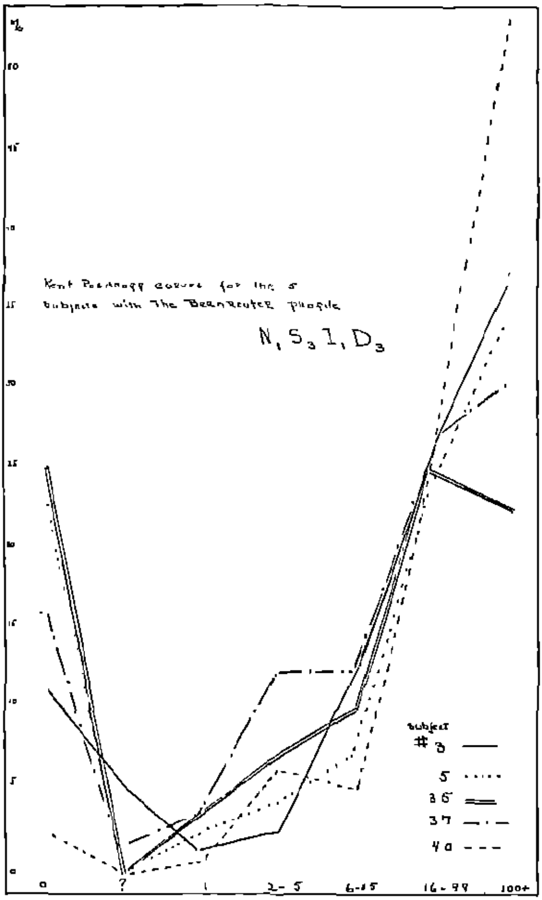


FIGURE 8

This would lead one to conclude that the Bernreuter scale is a more discriminating measure for the selection of the extremes of social adjustments than either the Kent-Rosanoff or the Brown. For, while the Brown has agreed in every instance with the Bernreuter, it places many more individuals in the group of "excellent" and "very poor." It also would lead one to conclude that our tests are better equipped to select the maladjusted individual from a group

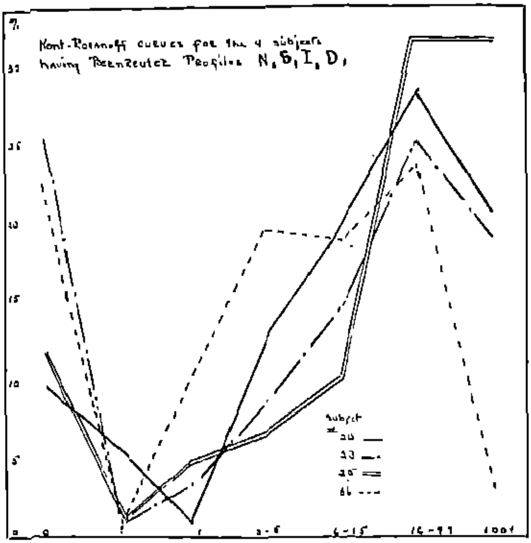


FIGURE 9

than the socially well adjusted. This should be verified in a so-called normal group, since it is possible that the very fact that they are unmarried mothers causes a degree of maladjustment.

Table 15 gives the results on the Brown Personality Inventory for children. The table shows that the scores vary from 4 (a very high rating of excellence) to 39 (a very poor personality adjustment). Score 1 would be perfect adjustment and 49 maximum maladjustment. For this group of 40 subjects there were 9 or 22.5 per cent having the rating of "excellent," 10 or 25 per cent having the rating of "good," 3 or 7.5 per cent "average," 10 or 25 per cent "poor," and 8 or 20 per cent "very poor." Thus according to this scale 22 subjects, or 55 per cent, are socially well adjusted.

Summarizing, the emotional maturity of the group approaches the normal and is superior to the mental age of the group. The associations of more than 80 per cent of the group are normal, while only 2 subjects or 5 per cent show any marked deviation from the normal. On the question of social adjustment, we find that they show all degrees of adjustment from extreme stability to marked

TABLE 15

RESULTS ON THE BROWN PERSONALITY INVENTORY FOR CHILDREN

No.	Score	Rating
1	12	Good
2	24	Poor
3	5	Excellent
4	27	Very poor
5	9	Good
6	24	Poor
7	14	Good
8	20	Poor
9	13	Good
10	21	Poor
11	12	Good
12	10	Good
13	29	Very poor
14	16	Average
15	8	Excellent
16	24	Poor
17	6	Excellent
18	28	Very poor
19	6	Excellent
20	27	Very poor
21	5	Excellent
22	19	Poor
23	22	Poor
24	8	Excellent
25	20	Poor
26	9	Good
27	2	Excellent
28	32	Very poor
29	5	Excellent
30	14	Good
31	15	Average
32	22	Poor
33	13	Good
34	39	Very poor
35	4	Excellent
36	37	Very poor
37	16	Average
38	32	Very poor
39	20	Poor
40	11	Good

instability; however, the largest percentage of the group seem to be well adjusted socially.

This would lead one to conclude that this group of unmarried mothers are emotionally, in their associations and in their personality make-up, a normal group.

Vocational Possibilities

Table 16 presents the scores on the Masculinity-Femininity Scale of the Strong Vocational Blank for Women. Again literature is lacking in recorded studies, for the scale has just been completed.

TABLE 16

Scores on Masculinity-Femininity Scale of the Strong Vocational Blank for Women

No.	Score	Centile
1	—81	98
2	—63	89
3	—60	83
4	—28	39
5	—43	63
6	—31	39
7	—69	92
8	—75	95
9	—16	20
10	—42	52
11	—38	52
12	—81	98
13	—61	83
14	—60	83
15	—47	63
16	—28	39
17	—26	28
18	—37	45
19	—56	76
20	—14	20
21	—78	98
22	—70	92
23	—52	71
24	—33	45
25	—48	71
26	—54	76
27	— 8	15
28	—114	99
29	—53	76
30	—54	76
31	—66	89
32	—46	63
33	—48	71
34	—46	63
35	—14	20
36	— 1	6
37	—50	71
38	—70	92
39	—59	83
40	—71	92

Using this scale, however, the findings of this study range from 6 to 99 centiles, having a mean of 65 and a median of 71. This scale will be discussed further in its relation to other measures. For the present it seems sufficient to say that this scale places most of the subjects well above average towards femininity.

TABLE 17

Results for the Strong Vocational Blank for Women—Nurses Rating Scale

No.	Score	Standard score	Rating
1	+ 21	39	B
2	+ 50	49	A
3	+ 72	56	A
4	+ 15	37	B
5	+ 44	47	A
6	+ 36	44	B+
7	+ 30	42	B+
8	+ 65	54	A
9	— 55	12	C
10	+ 56	51	A
11	+ 5	33	B—
12	+113	72	A
13	+ 28	42	B+
14	+ 48	49	A
15	+ 59	53	A
16	+ 24	40	B+
17	+ 30	42	B+
18	+ 4	33	B—
19	+ 38	46	A
20	+ 15	37	B
21	+ 64	54	A
22	+ 14	37	B
23	+ 61	53	A
24	+ 28	42	B+
25	+ 69	56	A
26	+ 35	44	B+
27	+ 65	54	A
28	+ 64	54	A
29	+ 43	47	A
30	— 8	28	C+
31	+ 28	42	B+
32	+ 0	32	B—
33	+ 60	53	A
34	+ 44	47	A
35	— 35	19	C
36	+ 28	42	B+
37	+ 63	54	A
38	+ 29	42	B+
39	+ 53	51	A
40	+ 33	44	B+

Table 17 records the raw scores in Column 2, the standard scores in Column 3, and the ratings in Column 4. The standard scores have been derived from Strong's tables of scores for nurses whose mean score equals 50 and standard deviation equals 10. The standard score has a range of 12 to 72, a mean of 44.3, and a median of 44. The rating frequencies are as follows:

A	19 subjects
B+	11 subjects
B	4 subjects
B—	3 subjects
C+	1 subject
C	2 subjects

Strong (19), in evaluating these ratings, states:

> The rating A means that the individual has the interests of women successfully engaged in that occupation; the rating C means that the person does not have such interests; and the rating B+ and B, and B— mean that the person probably has those interests but we cannot be so sure of that fact as in the case of A ratings. From the data at hand it appears that those with B+ ratings average somewhat less in efficiency than those with A ratings but that some with B+ ratings rank very high, so that no prognosis may be made of the degree of success from A and B+ ratings in any particular case. Those with C ratings, on the other hand, have too little interest to belong to the group.

Strong states that factors other than interest must be taken into consideration for vocational purposes. It would seem that intelligence should be one of these factors. However, Habbe (9), studying this very problem with a group of nurses, states: "Intelligence within the range of 86-129 IQ is not an important factor in success in nurses training ($r = .18 \pm 15$)." He continues further: "Personality factors apparently are of first importance in determining success in nurses training."

Comparing the intelligence scores and ratings of the 40 girls on the nurses scale, we note that, of the 19 subjects who have "A" ratings, 11 fall within limits of intelligence set by Habbe, namely, 86-129 IQ, while, of the 11 subjects who have "B+" rating, 6 are within these limits. Thus there are 11 subjects who meet the requirements for success of both Strong and Habbe.

Socio-Economic Status

Table 18 records the findings on the scores and ratings on the Sims Score Sheet for Socio-Economic Status. The individual numbers of the 40 unmarried mothers are recorded in Column 1, the raw scores are given in Column 2, and the ratings are listed in Column 3.

TABLE 18

Results for the Sims Score Sheet for Socio-Economic Status

No.	Score	Rating
1	9	Medium
2	11	Medium
3	6	Low
4	6	Low
5	6	Low
6	10	Medium
7	9	Medium
8	7	Medium (low)
9	13	Medium (high)
10	8	Medium (low)
11	7	Medium (low)
12	10	Medium
13	11	Medium
14	8	Medium (low)
15	7	Medium (low)
16	7	Medium (low)
17	12	Medium (high)
18	6	Low
19	12	Medium (high)
20	14	Medium (high)
21	13	Medium (high)
22	15	Medium (high)
23	6	Low
24	14	Medium (high)
25	12	Medium (high)
26	6	Low
27	7	Medium (low)
28	13	Medium (high)
29	9	Medium
30	17	High
31	8	Medium (low)
32	10	Medium
33	11	Medium
34	7	Medium (low)
35	13	Medium (low)
36	7	Medium (low)
37	10	Medium
38	5	Low
39	7	Medium (low)
40	20	High

TABLE 19

RAW SCORES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Individual	Brown Inventory	Binet (IQ)	Binet (MA)	Chronological Age	Ohio Literacy (MA)	Morgan (MA)	Morgan (Grade)	Pressey I-A (Grade)	Actual Grade Completed	Metropolitan Series	Strong (Masc.-Fem.)	Strong (Nurses)	Sims Socio-Econ. Rating	Healy II (MA)	Seguin (Time)	Bernreuter (B_1N)	Bernreuter (B_2S)	Bernreuter (B_3I)	Bernreuter (B_4D)	Bernreuter (F_1C)	Bernreuter (F_2S)
1	12	74	11.9	19	10	10.7	5.5	7	8	7.1	98	39	9	5	11	12	86	82	78	— 65	— 1
2	24	72	11.7	17	11	14.0	8.8	7	9	7.7	89	49	11	6	12	66	71	74	26	— 6	31
3	5	94	15.1	16	11	12.9	7.7	10	8	8.6	83	56	6	14	11	3	87	2	86	—142	— 17
4	27	64	10.3	16	11	9.8	4.7	7	5	6.6	39	37	6	15	14	72	35	70	23	25	— 61
5	9	63	10.0	17	10	10.7	5.5	8	8	7.2	63	47	6	11	13	17	72	21	84	— 93	— 14
6	24	76	12.2	16	11	15.1	9.9	9	10	8.4	39	44	10	11	10	33	38	40	31	44	—163
7	14	99	15.8	19	14	16.8	11.6	12	12	9.4	92	42	9	16	12	65	22	42	5	80	— 72
8	20	79	12.6	21	15	11.3	6.0	11	8	7.7	95	54	7	11	12	82	20	66	23	124	— 60
9	13	95	15.3	18	17	19.0	14.9	12	12	10.4	20	12	13	16	12	22	3	12	71	— 90	17
10	21	86	13.8	21	14	13.5	8.5	9	8	7.4	52	51	8	9	12	48	57	54	26	31	— 72
11	12	104	16.7	20	14	18.4	13.4	11	11	9.2	52	33	7	16	10	55	75	50	41	0	9
12	10	100	16.0	23	11	17.3	12.2	10	11	8.1	98	72	10	10	15	74	13	72	43	55	— 85
13	29	106	17.1	17	11	17.9	12.7	11	11	9.3	83	42	11	9	13	42	89	46	44	10	22
14	16	91	14.7	16	14	16.8	11.6	11	10	8.8	83	49	8	16	10	39	27	14	32	— 14	—118
15	8	110	17.7	19	17	17.9	12.7	10	10	8.7	63	53	7	16	11	35	39	43	83	— 7	— 51
16	24	85	13.7	21	16	12.4	7.1	12	9	7.4	39	40	7	9	9	45	28	28	32	15	— 97
17	6	87	14.0	21	10	11.3	6.0	6	10	7.0	28	42	12	16	9	56	43	53	30	35	— 43
18	28	101	16.2	18	17	17.3	12.2	13	12	10.2	45	33	6	5	9	82	78	77	17	91	64
19	6	97	15.6	20	14	12.4	7.1	11	12	7.8	76	46	12	16	8	45	63	42	32	2	—101
20	27	89	14.2	25	14	15.7	10.5	8	12	8.4	20	37	14	11	12	99	32	99	6	230	54

TABLE 19 (*continued*)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Individual	Brown Inventory	Binet (IQ)	Binet (MA)	Chronological Age	Ohio Literacy (MA)	Morgan (MA)	Morgan (Grade)	Pressey I-A (Grade)	Actual Grade Completed	Metropolitan Series	Strong (Masc.-Fem.)	Strong (Nurses)	Sims Socio-Econ. Rating	Healy II (MA)	Seguin (Time)	Bernreuter (B_1N)	Bernreuter (B_2S)	Bernreuter (B_3I)	Bernreuter (B_4D)	Bernreuter (F_1C)	Bernreuter (F_2S)
21	5	105	17.6	18	17	18.4	13.4	9	12	10.3	98	54	13	10	11	49	56	40	16	18	—36
22	19	94	15.1	17	17	14.6	9.4	11	12	9.4	92	37	15	13	11	71	42	69	20	103	—58
23	22	75	12.1	21	10	15.1	9.9	5	9	7.3	71	53	6	16	15	81	4	72	3	120	—150
24	8	98	15.8	19	16	16.2	11.1	15	12	8.9	45	42	14	7	13	3	28	3	78	—68	—131
25	20	73	11.8	23	12	13.5	8.3	9	10	7.5	71	56	12	10	11	74	22	70	5	139	—123
26	9	93	14.9	23	14	17.3	12.2	8	11	8.4	76	44	6	16	12	19	92	11	59	—77	37
27	2	103	16.6	19	17	14.6	9.4	10	10	8.0	15	54	7	14	11	2	63	11	89	—85	—90
28	32	84	13.5	20	16	14.6	9.4	6	12	7.9	99	54	13	16	11	63	19	58	35	44	—88
29	5	76	12.2	16	14	12.4	7.1	6	9	6.7	76	47	9	16	12	2	25	2	4	—152	2
30	14	87	13.9	19	11	14.0	8.8	7	12	7.7	76	28	17	6	11	7	38	12	74	—52	—135
31	15	83	13.3	16	14	12.9	7.7	8	8	7.1	89	42	8	15	11	69	75	62	74	—16	28
32	22	94	15.2	19	16	17.3	12.5	11	12	9.2	63	32	10	16	12	76	85	73	71	49	41
33	13	86	13.8	22	15	13.5	8.3	10	10	7.8	71	53	11	7	14	53	63	62	44	5	—9
34	39	90	13.8	15	14	11.8	6.6	10	8	7.5	63	47	7	11	14	99	69	99	29	172	81
35	4	68	10.9	20	8	8.8	3.9	8	8	5.6	20	19	13	16	11	7	72	3	78	—134	4
36	37	62	10.1	18	14	9.8	4.7	8	7	6.5	6	42	7	9	14	88	11	84	10	70	—2
37	16	84	13.3	20	14	14.6	9.4	10	12	8.5	71	54	10	16	12	4	91	9	90	—121	13
38	32	65	10.4	20	9	10.7	5.5	6	6	6.3	92	42	5	16	12	73	6	58	29	41	—75
39	20	87	14.0	16	11	15.1	9.9	10	10	7.5	83	51	7	10	10	69	22	73	53	81	—57
40	11	104	16.7	21	18	19.0	16.4	15	14	10.6	92	44	20	16	11	2	67	6	72	—138	—156

TABLE 20

TABLE OF CODES

Name of test	Code numbers												
	0	1	2	3	4	5	6	7	8	9	10	11	12
1. Brown Inventory	38-40	35-37	32-34	29-31	26-28	23-25	20-22	17-19	14-16	11-13	8-10	5-7	2-4
2. Binet (IQ)	61-65	66-70	71-75	76-80	81-85	86-90	91-95	96-100	101-105	106-110			
	10.0	10.6	11.2	11.8	12.4	13.0	13.6	14.2	14.8	15.4	16.0	16.6	17.2
3. Binet (MA)	10.5	11.1	11.7	12.3	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7
4. Chronological Age	Score—15 = coded score												
5. Ohio Literacy (MA)	Score—8 = coded score												
6. Morgan (MA)	8.5	9.4	10.3	11.2	12.1	13.0	13.9	14.8	15.7	16.6	17.5	18.4	
	9.3	10.2	11.1	12.0	12.9	13.8	14.7	15.6	16.5	17.4	18.3	19.2	
7. Morgan (Grade)	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5
	4.4	5.4	6.4	7.4	8.4	9.4	10.4	11.4	12.4	13.4	14.4	15.4	16.4
8. Pressey I-A	Score—5 = coded score												
9. Actual Grade Completed	Score—5 = coded score												
10. Metropolitan Series	5.6	6.1	6.6	7.1	7.6	8.1	8.6	9.1	9.6	10.1	10.6		
	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0		
11. Strong (Masc.-Fem.)	1	11	21—	31	41	51	61	71	81	91			
	10	20	30	40	50	60	70	80	90	100			
12. Strong (Nurses)	9-14	15-20	21-26	27-32	33-38	39-44	45-50	51-56	57-62	63-68	69-74		
13. Sims Socio-Econ. Rating	Score—5 = coded score												
14. Healy II (MA)	MA Score—5 = coded score												
15. Seguin (Time)	15—Time Score = coded score												
16. Bernreuter	Same as 11												
17. Bernreuter	" " "												
18. Bernreuter	" " "												
19. Bernreuter	" " "												
20. Bernreuter	—155	—125	— 95	— 65	—35	— 5	25	55	85	115	145	175	205
	—126	— 96	— 66	— 36	— 6	24	54	84	114	144	174	204	234
	—165	—145	—125	—105	—85	—65	—45	—25	— 5	15	35	55	75
21. Bernreuter	—146	—126	—106	— 86	—66	—46	—26	— 6	14	34	54	74	94

TABLE 21
Coded Scores

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Individual	Brown Inventory	Binet (IQ)	Binet (MA)	Chronological Age	Ohio Literacy (MA)	Morgan (MA)	Morgan (Grade)	Pressey I-A (Grade)	Actual Grade Completed	Metropolitan Series	Strong (Masc.-Fem.)	Strong (Nurses)	Sims Socio-Econ. Rating	Healy II (MA)	Seguin (Time)	Bernreuter (B_1N)	Bernreuter (B_2S)	Bernreuter (B_3I)	Bernreuter (B_4D)	Bernreuter (F_1C)	Bernreuter (F_2S)
1	9	2	3	4	2	2	2	2	3	3	9	5	4	0	4	1	8	8	7	3	8
2	5	2	2	2	3	6	5	2	4	4	8	6	6	1	3	6	7	7	2	4	9
3	11	6	8	1	3	4	4	5	3	6	8	7	1	9	4	0	8	0	8	0	7
4	4	0	0	1	3	1	1	2	0	2	3	4	1	10	1	7	3	6	2	6	5
5	10	0	0	2	2	2	2	3	3	3	6	6	1	6	2	1	7	2	8	2	7
6	5	3	3	1	3	7	6	4	5	5	3	5	5	6	5	3	3	3	3	6	0
7	8	7	9	4	6	9	8	7	7	7	9	5	4	11	3	6	2	4	0	7	4
8	6	3	4	6	7	3	2	6	3	4	9	7	2	6	3	8	1	6	2	9	5
9	9	6	8	3	9	11	11	7	7	9	1	0	8	11	3	2	0	1	7	2	9
10	6	5	6	6	6	5	4	4	3	3	5	7	3	4	3	4	5	5	2	6	4
11	9	8	11	5	6	11	9	6	6	7	5	4	2	11	5	5	7	4	4	5	8
12	10	7	10	8	3	9	8	5	6	5	9	10	5	5	0	7	1	7	4	7	4
13	3	9	11	2	3	10	9	6	6	7	8	5	6	4	2	4	8	4	4	5	9
14	8	6	7	1	6	9	8	6	5	6	8	6	3	11	5	3	2	1	3	4	2
15	10	9	12	4	9	10	9	5	5	6	6	7	2	11	4	3	3	4	8	4	5
16	5	4	6	6	8	4	3	7	4	3	3	5	2	4	6	4	2	2	4	5	3
17	11	5	6	6	2	3	2	1	5	2	2	5	7	11	6	5	4	5	3	6	6
18	4	8	10	3	9	9	8	8	7	9	4	4	1	0	6	8	7	7	1	8	11
19	11	7	9	5	6	4	3	6	7	4	7	6	7	11	7	4	6	4	3	5	3
20	4	5	7	10	6	8	7	3	7	5	1	4	9	6	3	9	3	9	0	12	10

TABLE 21 (*continued*)

Individual	1 Brown Inventory	2 Binet (IQ)	3 Binet (MA)	4 Chronological Age	5 Ohio Literacy (MA)	6 Morgan (MA)	7 Morgan (Grade)	8 Pressey I-A (Grade)	9 Actual Grade Completed	10 Metropolitan Series	11 Strong (Masc.-Fem.)	12 Strong (Nurses)	13 Sims Socio-Econ. Rating	14 Healy II (MA)	15 Seguin (Time)	16 Bernreuter (B_1N)	17 Bernreuter (B_2S)	18 Bernreuter (B_3I)	19 Bernreuter (B_4D)	20 Bernreuter (F_1C)	21 Bernreuter (F_2S)
21	11	8	12	3	9	11	9	4	7	9	9	7	8	5	4	4	5	3	1	5	6
22	7	6	8	2	9	6	5	6	7	7	9	4	10	8	4	7	4	6	1	8	5
23	6	2	3	6	2	7	6	0	4	3	7	7	1	11	0	8	0	7	0	9	1
24	10	7	9	4	8	8	7	10	7	6	4	5	9	2	2	0	2	0	7	7	1
25	6	2	3	8	4	5	4	4	5	3	7	7	7	5	4	7	2	6	0	9	2
26	10	6	8	8	6	9	8	3	6	5	7	5	1	11	3	1	9	1	5	2	10
27	12	8	11	4	9	6	5	5	5	4	1	7	2	9	4	0	6	1	7	2	3
28	2	4	5	3	8	6	5	1	7	4	9	7	8	11	4	6	1	5	3	6	3
29	11	3	3	1	6	4	3	1	4	2	7	6	4	11	3	0	2	0	0	0	8
30	8	5	6	4	3	6	5	2	7	4	7	3	12	1	4	0	3	1	7	3	1
31	8	4	5	1	6	4	4	3	3	3	8	5	3	10	4	6	7	6	7	4	9
32	6	6	8	4	8	9	9	6	7	7	6	3	5	11	3	7	8	7	7	6	10
33	9	5	6	7	7	5	4	5	5	4	7	7	6	2	1	5	6	6	4	5	7
34	0	5	6	0	6	3	3	5	3	3	6	6	2	6	1	9	6	9	2	10	12
35	12	1	1	5	0	0	0	3	3	0	1	1	8	11	4	0	7	0	7	1	8
36	1	0	0	3	6	1	1	3	2	1	0	5	2	4	1	8	1	8	0	7	8
37	8	4	5	5	6	6	5	5	7	5	7	7	5	11	3	0	9	0	8	1	8
38	2	0	0	5	1	2	2	1	1	1	9	5	0	11	3	7	0	5	2	6	4
39	6	5	6	1	3	7	6	5	5	3	8	7	2	5	5	6	2	7	5	7	5
40	9	8	11	6	10	11	12	10	9	10	9	5	15	11	4	0	6	0	7	0	1

TABLE 22
Gross Score Moments (Coded Scores)

	j \	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
$\Sigma X'_i$		292	191	248	162	219	243	214	177	200	184	242	217	189	294	136	171	173	167	154	204	231
$\Sigma X'_i X'_j$	1	2524	1498	1961	1219	1614	1832	1610	1331	1522	1387	1775	1592	1457	2261	1042	996	1353	1009	1291	1276	1623
	2	1498	1177	1540	790	1206	1409	1252	1002	1103	1065	1196	1055	996	1429	707	773	895	743	793	966	1108
	3	1961	1540	2026	1047	1583	1847	1638	1304	1436	1394	1554	1371	1294	1856	902	1002	1159	960	1030	1250	1428
	4	1219	790	1047	876	901	1022	893	713	862	738	960	901	840	1194	542	724	672	702	594	888	893
	5	1614	1206	1583	901	1477	1497	1329	1118	1207	1161	1315	1185	1115	1638	774	937	943	878	844	1125	1273
	6	1832	1409	1847	1022	1497	1857	1653	1221	1401	1365	1532	1318	1266	1825	844	1019	1056	959	960	1244	1382
	7	1610	1252	1637	893	1329	1653	1484	1094	1241	1223	1351	1147	1132	1615	737	887	938	837	872	1077	1226
	8	1331	1002	1304	713	1118	1221	1094	1001	980	963	1071	943	910	1266	631	719	796	672	741	902	998
	9	1522	1103	1436	862	1207	1401	1241	980	1154	1057	1241	1072	1119	1484	716	815	887	783	796	1016	1126
	10	1387	1065	1394	738	1161	1365	1223	963	1057	1064	1168	978	980	1309	651	758	842	715	745	920	1073
	11	1775	1196	1554	960	1315	1532	1351	1071	1241	1168	1766	1406	1163	1779	814	1049	1071	1030	927	1216	1346
	12	1592	1055	1371	901	1185	1318	1147	943	1072	978	1406	1303	958	1561	715	955	922	940	805	1135	1190
	13	1457	996	1294	840	1115	1266	1132	910	1119	980	1163	958	1355	1351	673	712	810	706	768	918	949
	14	2261	1429	1856	1194	1638	1825	1615	1266	1484	1309	1779	1561	1351	2716	1024	1209	1244	1090	1177	1383	1671
	15	1042	707	902	542	774	844	737	631	716	651	814	715	673	1024	564	540	594	523	517	660	736
	16	996	773	1002	724	937	1019	887	719	815	758	1049	955	712	1209	540	1081	630	1003	439	1161	1057
	17	1353	895	1159	672	943	1056	958	796	887	842	1071	922	810	1244	594	630	1051	682	802	750	1181
	18	1009	743	960	702	878	959	837	672	783	715	1030	940	706	1090	523	1003	682	1011	492	1095	1068
	19	1291	793	1030	594	844	960	872	741	796	745	927	805	768	1177	517	439	802	492	892	584	904
	20	1276	966	1250	888	1125	1244	1077	902	1016	920	1216	1135	918	1383	660	1161	750	1095	584	1362	1167
	21	1623	1108	1428	893	1273	1382	1226	998	1126	1073	1346	1190	949	1671	736	1057	1181	1068	904	1167	1729

TABLE 23
L_{ij} VALUES (CODED SCORES)

	1	2	3	4	5	6	7	8	9	10
1	15696	4148	6024	1456	612	2324	1912	1556	2480	1752
2	4148	10599	14232	658	6411	9947	9206	6273	5920	7456
3	6024	14232	19536	1704	9008	13616	12408	8264	7840	10128
4	1456	658	1704	8796	562	1514	1052	— 154	2080	— 288
5	612	6411	9008	562	11119	6663	6294	5957	4480	6144
6	2324	9947	13616	1514	6663	15231	14118	5829	7440	9888
7	1912	9206	12408	1052	6294	14118	13564	5882	6840	9544
8	1556	6273	8264	— 154	5957	5829	5882	8711	3800	5952
9	2480	5920	7840	2080	4480	7440	6840	3800	6160	5480
10	1752	7456	10128	— 288	6144	9888	9544	5952	5480	8704
11	336	1618	2144	— 804	— 398	2474	2252	6	1240	2192
12	316	753	1024	886	— 123	— 11	— 558	— 689	—520	— 808
13	3092	3741	4888	2982	3209	4713	4834	2947	6960	4424
14	4592	1006	1328	132	1134	1558	1684	—1398	560	—1736
15	1968	2304	2352	— 352	1176	712	576	1168	1440	1016
16	—10092	—1741	—2328	1258	51	— 793	—1114	—1507	—1600	—1144
17	3604	2757	3456	—1146	— 167	201	498	1219	880	1848
18	—8404	—2177	—3016	1026	—1454	—2221	—2258	—2679	—2080	—2128
19	6672	2306	3008	—1188	34	978	1924	2382	1040	1464
20	—8528	— 324	— 592	2472	524	188	— 576	— 28	— 160	— 736
21	—2532	199	— 168	—1702	331	— 853	— 394	—1321	—1160	416

TABLE 23 (*continued*)

	11	12	13	14	15	16	17	18	19	20	21
1	336	316	3092	4592	1968	—10092	3604	—8404	6672	—8528	—2532
2	1618	753	3741	1006	2304	— 1741	2757	—2177	2306	— 324	199
3	2144	1024	4888	1328	2352	— 2328	3456	—3016	3008	— 592	— 168
4	— 804	886	2982	132	— 352	1258	—1146	1026	—1188	2472	—1702
5	— 398	— 123	3209	1154	1176	31	— 167	—1454	34	324	331
6	2474	— 11	4713	1558	712	— 793	201	—2221	978	188	— 853
7	2252	— 558	4834	1684	376	— 1114	498	—2258	1924	— 576	— 394
8	6	— 689	2947	—1398	1168	— 1507	1219	—2679	2382	— 28	—1321
9	1240	— 520	6960	560	1440	— 1600	880	—2080	1040	— 160	—1160
10	2192	— 808	4424	—1736	1016	— 1144	1848	—2128	1464	— 736	416
11	12076	3726	782	12	— 352	578	974	786	— 188	— 728	—2062
12	3726	5031	—2693	—1358	— 912	1093	— 661	1361	—1218	1132	—2527
13	782	—2693	18479	—1526	1216	— 3839	— 297	—3323	1614	—1836	—5699
14	12	—1358	—1526	22204	976	— 1914	—1102	—5498	1804	—4656	—1074
15	— 352	— 912	1216	976	4064	— 1656	232	—1792	— 264	—1344	—1976
16	578	1093	—3839	—1914	—1656	13999	—4383	11563	—8774	11556	2779
17	974	— 661	— 297	—1102	232	— 4383	12111	—1611	5438	—5292	7277
18	786	1361	—3323	—5498	—1792	11563	—1611	12551	—6038	9732	4143
19	— 188	—1218	1614	1804	— 264	— 8774	5438	—6048	11964	—8056	586
20	— 728	1132	—1836	—4656	—1344	11556	—5292	9732	—8056	12864	— 444
21	—2062	—2527	—5699	—1074	—1976	2779	7277	4143	586	— 444	15799

TABLE 24

INTERCORRELATIONS, MEANS, AND STANDARD DEVIATIONS

	1	2	3	4	5	6	7	8	9	10
1	1.0000	.3216	.3440	.1239	.0463	.1503	.1310	.1331	.2522	.1499
2	.3216	1.0000	.9890	.0681	.5906	.7829	.7678	.6528	.7327	.7763
3	.3440	.9890	1.0000	.1300	.6112	.7893	.7622	.6335	.7147	.7767
4	.1239	.0681	.1300	1.0000	.0568	.1308	.0963	—.0176	.2826	—.0329
5	.0463	.5906	.6112	.0568	1.0000	.5120	.5125	.6053	.5413	.6245
6	.1503	.7829	.7893	.1308	.5120	1.0000	.9822	.5061	.7681	.8588
7	.1310	.7678	.7622	.0963	.5125	.9822	1.0000	.5411	.7483	.8384
8	.1331	.6528	.6335	—.0176	.6053	.5061	.5411	1.0000	.5188	.6835
9	.2522	.7327	.7147	.2826	.5413	.7681	.7483	.5188	1.0000	.7484
10	.1499	.7763	.7767	—.0329	.6245	.8588	.8384	.6835	.7484	1.0000
11	.0244	.1430	.1396	—.0780	—.0343	.1824	.1760	.0006	.1438	.2138
12	.0356	.1051	.1033	.1332	—.0164	—.0013	—.0675	—.1041	—.0934	—.1221
13	.1816	.2673	.2573	.2539	.2259	.2809	.3053	.2323	.6523	.3488
14	.2460	.0656	.0638	.0094	.0722	.0847	.0970	—.1005	.0479	—.1249
15	.2464	.3511	.2640	—.0589	.1749	.0905	.0506	.1963	.2878	.1708
16	—.6808	—.1429	—.1408	.1154	.0025	—.0543	—.0808	—.1365	—.1723	—.1036
17	.2614	.2433	.2247	—.1110	—.0144	.0148	.0389	.1187	.1019	.1800
18	—.5988	—.1888	—.1926	.0976	—.1231	—.1606	—.1731	—.2562	—.2366	—.2036
19	.4869	.2048	.1968	—.1158	.0029	.0724	.1510	.2533	.1211	.1435
20	—.6002	—.0277	—.0373	.2324	.0271	.0134	—.0436	—.0026	—.0180	—.0696
21	—.1608	.0154	—.0096	—.1444	.0250	—.0550	—.0269	—.1126	—.1176	.0355
M'	7.300	4.775	6.200	4.050	5.1475	6.075	5.350	4.425	5.000	4.600
σ'	3.1321	2.5738	3.4943	2.3447	2.6362	3.9853	2.9116	2.3333	1.9621	2.3324
M'	7.500	4.775	6.200	4.050	5.475	14.368	9.500	9.425	10.0000	8.0125
σ	9.3963	12.8690	2.0966	2.3447	2.6362	2.7768	2.9116	2.3333	1.9621	1.1662

TABLE 24 (*continued*)

	11	12	13	14	15	16	17	18	19	20	21
1	.0244	.0356	.1816	.2460	.2464	—.6808	.2614	—.5988	.4869	—.6002	—.1608
2	.1430	.1031	.2673	.0656	.3511	—.1429	.2433	—.1888	.2048	—.0277	.0154
3	.1396	.1053	.2573	.0638	.2640	—.1408	.2247	—.1926	.1968	—.0373	—.0096
4	—.0780	.1332	.2339	.0094	—.0589	.1134	—.1110	.0976	—.1158	.2324	—.1444
5	—.0343	—.0164	.2239	.0722	.1749	.0025	—.0144	—.1231	.0029	.0271	.0250
6	.1824	—.0013	.2809	.0847	.0905	—.0543	.0148	—.1606	.0724	.0134	—.0550
7	.1760	—.0675	.3053	.0970	.0506	—.0808	.0389	—.1731	.1510	—.0436	—.0269
8	.0006	—.1041	.2323	—.1005	.1963	—.1365	.1187	—.2562	.2333	—.0026	—.1126
9	.1438	—.0934	.6523	.0479	.2878	—.1723	.1019	—.2366	.1211	—.0180	—.1176
10	.2158	—.1221	.3488	—.1249	.1708	—.1036	.1800	—.2036	.1435	—.0696	.0355
11	1.0000	.4780	.0523	.0007	—.0502	.0445	.0805	.0638	—.0156	—.0584	—.1493
12	.4780	1.0000	—.2793	—.1285	—.2017	.1302	—.0847	.1713	—.1570	.1407	—.2834
13	.0523	—.2793	1.0000	—.0753	.1403	—.2387	—.0199	—.2182	.1085	—.1191	—.3335
14	.0007	—.1285	—.0753	1.0000	.1027	—.1086	—.0672	—.3293	.1107	—.2755	—.0573
15	—.0502	—.2017	.1403	.1027	1.0000	—.2196	.0331	—.2509	—.0379	—.1859	—.2466
16	.0445	.1302	—.2387	—.1086	—.2196	1.0000	—.3366	.8723	—.6780	.8611	.1868
17	.0805	—.0847	—.0199	—.0672	.0331	—.3366	1.0000	—.1307	.4518	—.4240	.5261
18	.0638	.1713	—.2182	—.3293	—.2509	.8723	—.1307	1.0000	—.4927	.7659	.2942
19	—.0156	—.1570	.1085	.1107	—.0379	—.6780	.4518	—.4927	1.0000	—.6494	.0426
20	—.0584	—.1407	—.1191	—.2755	—.1859	.8611	—.4240	.7659	—.6494	1.0000	—.0311
21	—.1493	—.2834	—.3335	—.0573	—.2466	.1868	.5261	.2942	.0426	—.0311	1.0000
M'	6.050	5.425	4.725	7.350	3.400	4.275	4.325	4.175	3.850	5.100	5.775
σ'	2.7473	1.7732	3.3984	3.7253	1.5937	2.9579	2.7512	2.8008	2.7345	2.8355	3.1424
M	66.000	44.050	9.725	12.350	11.600	48.25	48.750	47.250	44.000	12.500	—40.000
σ	27.4730	10.6392	3.3984	3.7253	1.5937	29.5790	27.5120	28.0080	27.3450	85.0650	62.8480

TABLE 25

PROBABLE ERRORS OF COEFFICIENTS IN TABLE 24

Absolute value of correlation coefficient	Probable error correct to two decimal places
.9764-.9999	.00
.9272-.9763	.01
.8754-.9271	.02
.8202-.8753	.03
.7611-8201	.04
.6969-.7610	.05
.6263-.6968	.06
.5474-.6262	.07
.4529-.5473	.08
.3341-.4528	.09
.0898-.3340	.10
.0000-.0898	.11

We note that No. 1 has a score of 9 and a socio-economic rating of "Medium." The scores range from 5 to 20 with a mean of 9.7 and a median of 9. There are 2 subjects with "High" ratings, 9 with "Medium High," 10 with "Medium," 12 with "Medium Low," and 7 with "Low." According to this rating 21, or 52.5 per cent, of the girls come from homes which are average or above average in socio-economic status.

STATISTICAL TREATMENT

Table 19 records the raw scores, which include all tests except the Kent-Rosanoff Association Test, used in this investigation. Table 20 presents the table of codes for each of the tests.

Table 21 presents the same data as Table 19 except that they are in coded form. Table 22 gives the gross score moments using the coded scores. Table 23 shows the L_{ij} values using coded scores, while Table 24 presents the intercorrelations, means, and standard deviations. Table 25 lists the probable errors of coefficients. The formula used was the gross score product-moment formula derived by Toops from the Pearson product-moment formula:

$$r = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{N\Sigma X^2 - (\Sigma X)^2}\ \sqrt{N\Sigma Y^2 - (\Sigma Y)^2}}.$$

If we scrutinize Tables 24 and 25, we find that the Stanford-Binet [2] has its highest correlation +.7829±.04 with the Morgan mental age [6] and only a slightly lower correlation +.7763±.04 with the Metropolitan series [10]. Some of the other significant correlations with Binet scale follow:

[7]	Morgan (Grade)	+.7678±.04
[9]	Actual School Grade	+.7329±.05
[5]	Ohio Literacy	+.5906±.07

The Ohio Literacy's [5] highest correlation is +.6245±.07 with the Metropolitan series [10]. It also correlates highly +.5725±.07 with the Morgan grade [7], +.6053±.07 with the Pressey Interest-Attitude [8], and +.5413±.08 with actual school grade [9].

The Morgan [6], as before stated, correlates highly with the Binet [2] and the Ohio Literacy [5], and has a +.5061±.08 correlation with the Pressey Interest-Attitude Test [8], and a +.8588±.03 correlation with actual school grades [9]. The Pressey [6], too, correlates highly with actual school grade [9], +.5188±.07, and has a +.6835±.06 correlation with the Metropolitan series [10], while the Metropolitan [10] shows +.7484±.05 correlation with actual school grades [9].

Upon further examination of these two tables we find that the Brown Inventory's [1] highest positive correlation is +.4869±.08 with the measurement of dominance [19] on the Bernreuter scale. The only other positive correlation which is sufficiently high to be noticed is a +.3440±.09 between the Brown [1] and the mental age on the Stanford-Binet Scale [3].

Interestingly enough the Brown Inventory [1] has a high negative correlation with three of the measurements on the Bernreuter Inventory, namely: neurotic tendency [16] —.6808±.06, introversion-extroversion [18] —.5988±.03, and confidence [20] —.6002±.07. This would seem to indicate that, in spite of the fact that both the Brown Inventory and the neurotic portion of the Bernreuter Inventory are trying to pick out neurotic tendencies, they are not accomplishing the same thing, in fact just the opposite. The Brown Inventory is more closely related to the dominance-submission measurement of the Bernreuter.

A further examination of the Brown [1]-Bernreuter correlations shows:

[16]	B_1N (Neurotic)	—.6808±.06
[17]	B_1S (Self-sufficiency)	+.2614±.10

[18]	B_3I (Introvert-extrovert)	—.5988±.07
[20]	F_1C (Confidence)	—.6002±.07
[21]	F_2S (Sociability)	—.1608±.10

The Sims Scale [13] of socio-economic status strangely enough has a +.6523±.06 correlation with actual school grades [9] and, as one would expect, a very low correlation with all other measures.

The Strong Scale of Masculinity-Femininity [11] has a +.4780 ±.08 correlation with the nurses' rating [12]. All other tests have very low correlations with these two scales. Strong states that the masculinity-femininity scale has a coefficient of reliability of .74, and the nurses' scale .87.

In spite of the fact that the Healy Pictorial Completion II [14], is considered an intelligence test, it has the following correlations with intelligence tests, Binet [2] +.0656±.11, Ohio Literacy [5] +.0722±.11, Morgan [6] +.0847±.11 and Seguin [15] +.1027±.10. Its highest correlation (which is a low negative one, —.3293±.10) is with the introversion-extroversion measure of the Bernreuter Inventory [18]. This seems to make it fairly conclusive that the Healy II is not measuring intelligence, and tests something different from the other so-called "intelligence" tests.

The Seguin [15] Form-Board's highest correlation is +.3511±.09 with the Binet IQ [2], while all other correlations are low.

The Thurstone (22) Simplified Multiple-Factor Method was applied to the table of 231 coefficients.[6] Figure 10 was plotted to show all high correlation coefficients. Those above .40 were marked +, and those above .80 were marked ++. An examination of the graph shows at once that there were two distinct clusters, the one consisting of the eight variables which are concerned with the so-called intelligence tests, the other consisting of six of the tests concerned with personality or social factors. Tables 26 and 27 are simply small tables drawn from the large correlation Table 24. Each of the two derived tables Thurstone would call a "correlation matrix." The former presents the correlations of the eight variables concerned with intelligence, namely Binet IQ and MA Ohio Lit-

---

[6] This method was used in preference to all others since it was hoped that through this multiple-factor analysis it would be possible to select a few tests for future use in the continuation of this study which would be just as valuable at a reduced cost in time of administering and scoring and in actual cost of materials.

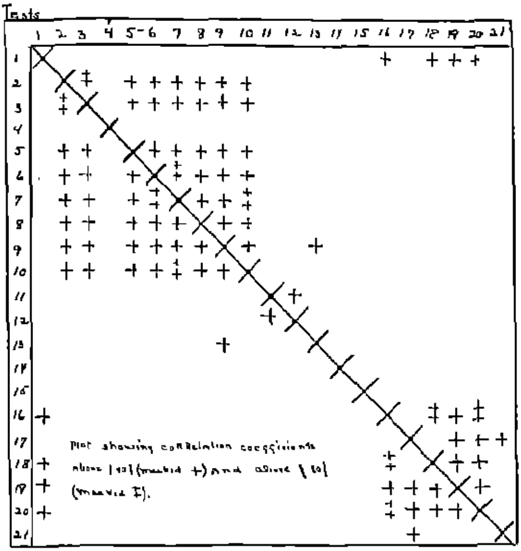


FIGURE 10

TABLE 26

INTERCORRELATIONS OF TESTS DEALING WITH SO-CALLED INTELLIGENCE WITHIN THE GROUPINGS IN FIGURE 2

	2	3	5	6	7	8	9	10
2	1.0000	.9890	.5906	.7829	.7678	.6528	.7327	.7763
3	.9890	1.0000	.6112	.7893	.7622	.6335	.7147	.7767
5	.5906	.6112	1.0000	.5120	.5125	.6053	.5413	.6245
6	.7829	.7892	.5120	1.0000	.9832	.5061	.7681	.8588
7	.7678	.7622	.5125	.9832	1.0000	.5411	.7483	.8384
8	.6528	.6335	.6053	.5061	.5411	1.0000	.5188	.6835
9	.7327	.7147	.5413	.7681	.7483	.5188	1.0000	.7484
10	.7763	.7767	.6245	.8588	.8384	.6835	.7484	1.0000

TABLE 27

INTERCORRELATIONS OF TESTS DEALING WITH SOCIAL FACTORS

	15	16	17	18	19	20
1	1.0000	—.6808	.2614	—.5988	.4869	—.6002
16	—.6809	1.0000	—.3366	.8724	—.6780	.8611
17	.2614	—.3366	1.0000	—.1307	.4518	—.4240
18	—.5988	.8723	—.1307	1.0000	—.4927	.7659
19	.4869	—.6780	.4518	—.4927	1.0000	—.6494
20	—.6002	.8611	—.4240	.7659	—.6594	1.0000

eracy MA, Morgan MA and grade, Pressey I-A grade, actual grade completed, and the Metropolitan Achievement Test averages. The latter is concerned with tests of a social nature, namely, five of the Bernreuter Inventory measures and the Brown Personality Inventory.

The results of the Factor Analysis concerned with the intelligence variables are recorded in Table 28. Part I presents the factor loadings, while Part II records the discrepancies between the given correlation coefficients and the coefficients compiled from these three factors. A study of the factor weights shows that all of the variables contain high positive weightings of Factor I. It is possible that this factor is closely akin to what is meant by the term "intelligence."

TABLE 28

FACTOR ANALYSIS OF SO-CALLED INTELLIGENCE VARIABLES

Part I: Factor loadings

	Factor			
Test	I	II	III	h^2
2	.9259	—.2301	.2770	.9870
3	.9236	—.2369	.2682	.9811
5	.6813	—.2117	—.2584	.5758
6	.9115	.3839	.1229	.9782
7	.9046	.3610	.0693	.9534
8	.7112	—.2624	—.3010	.6653
9	.8167	.1260	—.0039	.6829
10	.9088	.1061	—.1863	.8719

Part II: Discrepancies between given correlation coefficients and the coefficients compiled from these three factors

Discrepancies		Frequency
—.039	—.035	1
—.034	—.030	
—.029	—.025	
—.924	—.020	2
—.019	—.015	1
—.014	—.010	7
—.009	—.005	4
—.004	.000	1
.001	.005	4
.006	.010	5
.011	.015	1
.016	.020	1
.021	.025	
.026	.030	1

Also one notes that Test 2 (Binet IQ) and Test 6 (Morgan MA) contain the largest amounts of Factor I. Looking at Factor II we discover that all of the variables carry small amounts of this factor. The largest weighting is contained in the Morgan MA. Factor III is present in only a very small portion in any of the variables. A survey of the entire table leads one to decide that the Binet test measures best whatever is measured by Factor I, while the Morgan is the most reliable measure of both Factors I and II and contains a small positive weighting of Factor II. The symbol h^2 is called "a communality coefficient" by Thurstone and is the sum of the squares of Factors I, II, and III.

In Table 29 are listed six social variables: the factor loadings are listed as Part I, and the discrepancies are listed as Part II. Concentrating one's attention upon the weightings of Factor I, it becomes evident that Test 16 (Bernreuter-Neurotic tendencies) carries the

TABLE 29

FACTOR ANALYSIS OF SOCIAL VARIABLES

Part I: Factor loadings

Test	I	II	III	h^2
1	—.7221	.1589	.2567	.6126
16	.9386	—2042	.1241	.9381
17	—.4488	—.4774	.0749	.4349
18	.8146	—.4337	.2295	.9043
19	—.7500	—.2553	—.0454	.6297
20	.9082	.0389	.1370	.8451

Part II: Discrepancies

Magnitude		Frequency
—.046	—.050	1
—.041	—.045	
—.036	—.040	
—.031	—.035	
—.026	—.030	
—.021	—.025	1
—.016	—.020	1
—.011	—.015	
—.006	—.010	3
—.001	.005	2
.004	.000	4
.009	.005	
.014	.010	2
.019	.015	
.024	.020	1

largest portion of this factor. Looking at Factor II's loadings we find that Test 17 has the largest portion of Factor II but that Test 18 carries almost as much and contains more of Factor I. Factor III is contained in only small amounts by any of the variables, Test I having the largest amount, but Test 18 having a fair portion and also containing a larger portion of Factors I and II. Thus it would seem that the parts of the Bernreuter, here called Tests 16 and 18, are the best measures of the social factors, since Test 16 or the neurotic tendency carries the highest portion of Factor I, and Test 18 (introversion-extroversion) carries goodly portions of Factors I, II, and III.

Since Tests 2 and 6 of the first group factored seem the most valuable of the so-called "intelligence" tests, and Tests 16 and 18 the most practical tests of a social nature, this same method was applied to these four variables and the remaining seven variables, which had not yet been considered in the factoring. The resulting factor loadings are shown in Part I and the discrepancies in Part II of Table 30. Looking at the weightings of Factor I one suspects that it is akin to the social factor which was evident in Factor I on the Social Variable Analysis, for Tests 16 and 18 contain much higher proportions than any of the others. If this supposition is true, *it is interesting that the Binet carries a goodly proportion.* At any rate Test 18 seems best to measure whatever Factor I measures. If we would continue to speculate, Factor II certainly has some relation to Factor I of the intelligence variables for Tests 2 and 6 carry high loadings, while interestingly enough Test 14

TABLE 30*a*

FACTOR ANALYSIS OF 11 REMAINING VARIABLES

Part I: Factor Loadings

	Factor						
Test	I	II	III	IV	V	h^2	
2	.5213	—.7544	.0966	—.2216	.0423	.9011	[2]
4	—.0064	—.2209	.0030	.1563	—.1894	.1091	
6	—.4583	—.6659	.1566	—.2896	.1662	.7763	
11	.1178	—.3253	.3989	.1514	—.0474	.3040	
12	.3739	—.2224	.7213	—.2159	.7098	1.2600	[3, 5]
13	—.4005	—.1933	—.0529	.3233	.2513	.3682	
14	—.2594	.1609	.1861	—.2784	.2468	.2662	
15	—.4774	—.0347	—.1365	.0921	.4566	.4647	
16	.6907	—.3581	—.2670	—.1785	.1029	.7190	
18	.8147	—.4565	—.4994	—.0016	.1217	1.1363	[1]
21	.2117	.1160	—.1871	—.6066	.0033	—.4613*	[4]

TABLE 30*b*

DISCREPANCIES BETWEEN GIVEN CORRELATION COEFFICIENTS AND THOSE PREDICTED BY 11 FACTORS (11 VARIABLES)

Part II: Discrepancies		
Discrepancy		Frequency
.22	.23	1
.20	.21	
.18	.19	2
.16	.17	
.14	.15	1
.12	.13	1
.10	.11	
.08	.09	1
.06	.07	1
.04	.05	3
.02	.03	7
.00	.01	10
.02	—.01	5
—.04	—.03	6
—.06	—.05	7
—.08	—.07	6
—.10	—.09	2
—.12	—.11	
—.14	—.13	1
—.16	—.15	
—.18	—.17	1

(Healy Pictorial Completion II) carries a very low loading. Examination of Factors III and V immediately shows that Test 12 (Strong's Nurses) carries by far the largest portions, while in Factor IV, Test 21 (Bernreuter Sociability) has the only weighting of any amount. Table 31 shows the high discrepancies after calculating five general and six specific factors.

TABLE 31

HIGH DISCREPANCIES (ABOVE 1.101) AFTER CALCULATING FIVE GENERAL AND SIX SPECIFIC FACTORS

Tests	Discrepancy
Strong (Nurses)—Binet (IQ)	.2166
Strong (Nurses)—Chronological Age	—.1829
Strong (Nurses)—Sims Socio-Econ. Rating	.1882
Strong (Nurses)—Healy II	.1993
Strong (Nurses)—Bernreuter (F_2S)	.1225
Strong (Masc.-Fem.)—Chronological Age	.1829
Healy II—Seguin	—.1267

Thus as a result of this factor analysis, if one were to sort out the test which would make the best battery for future measuring of these factors—whatever they may be—he would be led to select Test 2 (Binet) since it measures Factor II best, and Test 12 (Strong's Nurses) since it is the only variable that carries goodly proportions of Factors III and V, and Test 18 since it measures Factor I better than all others. Test 2 has been disregarded since it carries a medium amount of Factor IV and only minimum amounts of any of the other factors.

6. SUMMARY AND GENERAL CONCLUSIONS

1. The broken home seems to be a factor in this particular phase of delinquency, for 60 per cent of the homes are broken by death or divorce.

2. The occupations of the fathers of the subjects vary from the professional group to the day laboring group, the largest percentage belonging to the middle class.

3. The occupation, housework, seems to be a contributing factor in this problem of delinquency.

4. With but a single exception all of the unmarried mothers studied had church connections, including all of the larger denominations.

5. The size of family seems not to be important in this study except that the largest percentages seemed to be in families of from three to seven children.

6. Contrary to popular opinion that the unmarried mothers are in early adolescence, this study found the average chronological age of this group to be 19 years with a range of from 15 to 25 years.

7. While other studies have reported that the unmarried mothers are of low intelligence, this study found that 45 per cent were girls of normal mentality, 25 per cent were dull average, 17 per cent were borderline, and 13 per cent were feebleminded of the moron grouping.

8. In general the school grade attained by these subjects is the 10th grade, while their school-achievement level is one year lower than their actual grade placement.

9. One would expect to find emotional immaturity in this group; measurements, however, show that their emotional maturity approaches that of the normal. The associations of the group as a whole are normal. There seemed to be seven rather characteristic "block" words.

10. As a group they tend very definitely toward femininity as opposed to masculinity.

11. A large portion, practically 50 per cent of the group, display interests which should make them successful nurses, while 25 per cent have both the mental and social requirements for a good nurse.

12. The multiple-factor method has made it possible to select three tests which should measure the same factors measured by this longer series of tests. The three tests are the Binet, Strong's Nurses Scale, and Bernreuter Introversion-Extroversion.

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12. The multiple-factor method has made it possible to select three tests which should measure the same factors measured by this longer series of tests. The three tests are the Binet, Strong's Nurses Scale, and Bernreuter Introversion-Extroversion.

One of the early hopes of our study was that some of the tests would present results which were characteristic for this group and thus have prognostic value in selecting the girl who had tendencies toward this type of delinquency. To give a specific example, considerable discussion centered about the associations of these girls who allowed themselves to become pregnant out of wedlock. The Kent-Rosanoff Association Test was given to determine whether or not their associations were normal ones. In this instance, as in all others, the hope that findings would be peculiar to this group failed. Consequently we face two alternatives: (1) that the subjects do not differ in any considerable degree from the normal group, or (2) that the selected tests did not have that nicety of discrimination which could make the difference evident. Until we are reasonably certain that the second alternative is not the true one, we shall continue to select different measures, hoping to secure one that will have true prognostic significance.

As an outgrowth of the multiple-factor analysis of our study, a much shortened series of tests will be employed, consisting of (1) the Stanford Revision of the Binet-Simon Scale, supplying mental ages and intelligence quotients; (2) the Strong Vocational Blank for Women, which at present furnishes the masculinity-femininity percentiles and the nurses ratings, and which in the future should give many ratings on various usable vocations; and (3) the Bernreuter Personality Inventory, Introversion-Extroversion Scale, which carries the heaviest loadings for the three main factors measured by these social-adjustment measures. For practical purposes it will be expedient to include the Morgan Test to give school-grade placement and the Sims Score Sheet to furnish ratings on the socio-economic status.

Another problem and yet an outgrowth of this one will be to construct a single test, composed of and constructed from portions of these five tests, which will give the same results as the five tests. When this is completed and thoroughly standardized, the road will then be ready for a national study of the problems of the unmarried mother.

Some of the practical results which have come out of this investigation are (1) that the reports on the individual girls have been of practical importance to the court in making better disposition of some of the cases which were under their régime; (2) that it has aided in several cases in better placement of girls in jobs or avoidance of certain jobs; (3) it has been valuable in the placement of babies for adoption; and (4) it has helped in the supporting of suggestions for minimizing the influence of physical defects. For example, in the case of one girl with a better than average intelligence quotient, who has a hare-lip and cleft palate, which had caused a decided speech defect, which in turn has resulted in withdrawal from her companions, recommendations were made concerning this girl which included speech correction. The sequel has been a newly acquired confidence and poise and a much happier adjustment to her fellows.

It has been the goal of our study to acquire all measurements which would be valuable to gain as complete a picture as possible of each individual girl. In other words to really know each girl, her abilities and limitations, her strong and weak points in personality make-up, her successes and failures, her interests, and her ambitions just as thoroughly and completely as possible. Then, reinforced with this knowledge, create a program for each girl which will best re-establish her in society, educationally, economically, and socially.

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BEHAVIOR PROBLEMS IN THE CHILDREN OF PSYCHOTIC AND CRIMINAL PARENTS*

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1. INTRODUCTION

A considerable number of the children who are brought to the Children's Service of the Psychiatric Division of Bellevue Hospital have a parent who is psychotic or criminal. This study has been made in an effort to analyze the causes of the behavior difficulties in such children and to determine, if possible, to what extent constitutional and situational factors may be differentiated.

There have been several studies made on the offspring of psychotic parents. They seem to furnish very little evidence that a psychosis in a parent represents any severe threat to the future mental health of the offspring. Canavan (10) studied 1000 cases of schizophrenics who had been in the Boston Psychopathic Hospital between 1912 and 1921. She found that 275 had married and she was able to locate 136 families who had had 463 children, 86 of whom were dead. Of the 381 surviving children, 294 were still under the age of 16 years; only 86, or 19 per cent, were found to be mental deviates; 5 with dementia praecox, 4 with mental defect, 12 were backward, 12 were nervous, and 36 showed conduct disorders. In 86 per cent of the cases the psychotic parent was the mother. This study furnishes evidence that schizophrenic individuals are not prone to marry and there are fewer offspring than the usual expectancy for the population at large, but that women are more prone to marry than men. The offspring of such a union has one chance in five of being a mental deviate, but the type of the deviation is not specific. In another (11) study of 581 offspring of non-psychotic parents, Canavan found a comparable number of backward and nervous individuals but only one-fifth as many conduct disorders. She ascribed this to the poorer home control of the psychotic parent. Lampron (19) studied 75 families with psychotic parents in the Rhode Island State Hospital. The study included 144 offspring. She found that 38 or about one-half of the families had children that were mentally or socially maladjusted. This included 56 children, or 30 per cent. She reported that 65 per cent of these showed an "endogenous" maladjustment due to mental defectiveness and personality difficulties (three were said to be psychotic) and 23 were "exogenous" due to waywardness and worry about heredity of mental disease. She also found that the majority of psychotic parents were mothers, and felt that this was due to the closer relationship between the mother and the home and the child. She related the maladjustments not so much to the heredity as to the disrupted home and the instability resulting from the schizophrenic parent. Ramage (24) made a study of 115 offspring of psychotic mothers and found that 25 per cent showed mental deviation; 1.7 per cent were insane, 7 per cent were feebleminded, 7 per cent showed conduct disorders, and 12 per cent showed personality disorders. Preston and Antin (23) studied the school records of children under 18 years of age of 49 psychotic parents in a state hospital in Maryland and found that 61 per cent of the children showed deviations; 8 per cent were feeble-minded; 26.5 per cent had conduct disorders, and 26.5 percent had personality disorders. These authors did not examine the children but drew their conclusions from the school records, and furthermore they made a similar study on so-called normal children in the public schools and showed an even larger (87) per cent of deviations of the same category, and a study of children from broken homes showed 70 per cent of such deviations. These authors conclude that the children of psychotic parents present no special problems to psychiatry. But since their studies were made on case histories and school reports and since their results vary considerably from those of other investigators, one does not know how to evaluate them. The other authors, Canavan, Lampron, and Ramage are in fair agreement in that they found that 19, 30, and 25 per cent of the children of the psychotic parents which they studied showed some mental deviation, although they reveal no specific type of maladjustment.

This study does not concern itself with the essential problems of heredity in mental disease, since it is concerned with children who have not reached the age of expectancy of mental disease. Still there are certain data from the studies on heredity which may be of interest in this connection. There is now little doubt but that heredity must play some part in schizophrenia (25). Manfred Bleuler (6) has made a study on heredity in schizophrenia in Bloomingdale Hospital of New York, has compared his data with those from Munich and Basle by Rüdin and Luxenburg, and confirms the scientific evidence that schizophrenia occurs more often in the families of schizophrenics than in the average population.

Bleuler, however, raises the question as to whether this greater incidence is due to heredity entirely or also to external influences in the family with psychodynamic considerations. The incidence is less than would be expected for recessive Mendelian traits, the theory that has been held by many workers, including Rosanoff and Oberholzer (25) in this country. Rüdin has tried to account for the lesser incidence by his theory of dihybrid recessive inheritance, while others such as Rosanoff and Barrett have used polymorphism or allelomorphism to explain the presence of other forms of mental deviations in the family of schizophrenics. However, as Canavan has shown that in the families of a schizophrenic parent there are more behavior deviations due to the poorly controlled family life, so other external factors in the family life of psychotic individuals may play a more important part in so-called polymorphism than hereditary traits.

The importance of the emotional components in family relationships in the early years of childhood as a determinant of the personality of the individual, his behavior difficulties, and neuroses has been emphasized by the Freudian school, especially by Freud himself, Flügel (12) and Glueck (14). Statistical studies in behavior disorders or delinquency in children have revealed in many instances that a disproportionately large number of such children come from broken homes due to separation, desertion, death, sickness, psychoses, or criminal behavior of one of the parents [Healey and Bronner (15), C. Burt (9), and Lenroot (20)]. Silverman (27), in analyzing the factors that contribute to the behavior of children from broken homes, concludes that it is not the actual broken home as such or the criminal or psychotic behavior on the part of the parent which causes the behavior disorder in the child since many children experience a broken home without a behavior disorder, but that it is a problem related more to subtler emotional relationships within the family group. Moulton (22) has shown that identification with an undesirable parent may be a factor in delinquency in children.

There is also evidence that parental-child relationships established early in the life of the individual may be determining factors in some psychotic conditions. Adamson (1) has studied the common factor in 500 psychotic adults, studied in different clinics and under different conditions, and concludes that faulty parental attitude determines the patient's attitude early in life, and that in every case of maladjustment there had been an unhealthy parent which had prevented normal ego development and normal identification processes through the Oedipus complex. Kasanin and Knight (16) emphasize the importance of the parent-child relationship in schizophrenia, claiming that the biological inferiority of the child leads to overprotection on the part of the mother and is an essential factor in the final psychotic picture in the adult. My own studies (2) have shown that a reactive psychosis may develop as a response to mental disease in the family. It appears to be an expression both of constitutional weakness and of an emotional crisis in persons who show very deep or complex emotional relationships to the mentally sick member of the family. It occurs most often in women when a brother who has taken the place of a dead father becomes psychotic, or when a son who has taken the place of a dead husband becomes psychotic. It also usually occurs in young women who have not yet made a normal heterosexual adjustment, or in older women who have lost their heterosexual partner or primary love object and where the psychotic relative has come to stand symbolically for the love-life. In a family where a serious mental illness occurs, other members of the family may be vulnerable to mental disorders because of constitutional inferiority, they may experience emotional crises and behavior disorders if the family life is disrupted or the emotional relationship to the other member of the family is disturbed. The nature of the disorder is not specifically related to the type of psychosis in the first member of the family, but is related rather to the relationship between the two members of the family and the disturbance in the life history of the second member.

The present study will include all types of behavior disorders in children which are brought to the children's observation ward of Bellevue, and in which the history shows that one or the other parent has at some time been grossly psychotic or criminal to the extent of needing institutional care, with a recorded diagnosis or criminal charge. The children who come to our service represent all types of problems that are in need of observation. They come from our own Mental Hygiene Clinic, the Children's Courts, the Public Schools, child-placing agencies, and other social agencies. The problems include mental deficiency, epilepsy, organic brain diseases both congenital and acquired, psychoses, neuroses, primary behavior disorders, and isolated conduct disorders. In the year of 1935 when approximately 550 children were observed on the children's ward, nearly 15 per cent had a history of a parent who had a hospital record of psychoses or a court record of criminality. It is safe to say that at least an equal number of children had a parent who, in the opinion of social agencies, court officials, private physicians, or family members, was psychotic, psychopathic, profoundly neurotic, chronically alcoholic, or criminal, but in which there had not been a commitment to a state hospital or a conviction before court or in which a record could not be confirmed.

The present study[1] covers 60 children who were observed on the Children's Ward in the year and a half between October, 1934, and March, 1935. Two-thirds were boys and one-third girls. Although there was no selection of cases, this is the same proportion of boys and girls which has been admitted to our wards for the past five years. In several instances two children of the same family have been observed, in some instances at the same time and in others with an interval of time intervening. In a few instances both parents have been institutionalized for either psychotic or criminal behavior. The selection of the cases has been dependent entirely upon the conclusive evidence of the psychosis or criminal record of the parent.

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[1] It should be said that although the hospital classifies all individuals under 16 as children, the children's ward does not care for many children over 13 because of difficulties in adjusting the older adolescents to the smaller children. In general this study does not include many children over the age of 13.

2. CHILDREN OF SCHIZOPHRENIC PARENTS

The studies quoted from the literature, made on the children of psychotic parents, which have already been discussed have concerned themselves almost exclusively with schizophrenia or dementia praecox in the parent. The evidence points to the fact that schizophrenia in a parent may predispose to neuropathic traits in other members of the family and the social or mental maladjustment to some extent in children, but not necessarily to schizophrenic or schizoid features. Of the offspring of schizophrenic parents, 25 per cent are reported to be psychotic, and of these none developed the psychosis in childhood.

A Schizophrenic Child

From previous studies we would not expect to find a case of schizophrenia among these children. However, one such case does occur, so clear in the diagnosis and so striking in the history of the development of the psychosis in the child and the mother that it is difficult not to believe that heredity was the determining factor.

Case 1. Augustine was an 11-year-old colored girl who was brought from the Children's Court as a neglected child. She had spent three months in the Children's Society, together with two sisters, one older and one younger, because their mother was destitute and without a home. When the mother was re-established in a home by social agencies, this child refused to go with her, saying, "This is not my mother."

She had not yet reached puberty and had an IQ of 87. Her younger sister was 8 years old and had an IQ of 94, and the older sister was 15 years old, with an IQ of 68, both being normal in behavior and mental attitude. There was also a 17-year-old brother who had been in a correctional institution about a year for stealing lead pipes.

The child upon admission made the following statement:

> Our things were put on the sidewalk. We didn't have no place to go. I have two sisters and one brother. My sisters left Saturday. Their mother came for them. My mother didn't take

> me home because she didn't come. Another lady came for them. It was their mother. It was a different lady and wasn't my mother. She was shorter and she didn't have the same look. She was darker. I am different from my sisters. They knew that lady wasn't their mother but they went with her anyway. I am different in other ways too. They catch it before I do. I would still be doing it when they would know it. I am quieter. I hang around the house and sew and they will be out playing. I was born different. I am an oddicle person because I don't belong catching on before they do. I don't think they are my sisters. I have many ideas. I forget what I was saying. I wasn't paying attention. (*Hear something?*) Yes, out in the gutters, trucks, automobiles, people talking. My mind wanders away, away off up in the forest, way off and dark at nights, and goes like that. I just think something. About fairies and they turn cats into people and the princess they turn into something and it happened that this lady liked the princesses and they would turn back the princess into something else. (*God talk to you?*) Sometimes. Sometimes Jesus says something to me. His voice is slow and sweet. He never scolds me. He tells me what is right from wrong. I can hear him. Sometimes I can see God. Just like I am sitting talking to myself. I see him looking right at me. He has long hair. He is robed in something like a sheet in colors. He is a white God.

Two days later the mother visited the hospital and said:

> She acted kind of strange since August. I thought it was getting those electric shocks. I thought they were giving her electric shocks in the Children's Society. I give her to them to look after. They can tell you what was going on there. They sent the others home all right and they will send this one home, too, when they are ready. It is a precinct. It means sending them out for their neuro, for their mind. It is a mysterious work. It makes you have your thoughts. It is sent out from the police.

The mother was referred to the Mental Hygiene Clinic where she gave a family history which revealed that all of her father's people were queer, that her mother had a breakdown after the death of her (mother's) husband, and that she had a sister in an institution for mental defectives. She had been nervous since her husband left her six years before; had separated herself and children from other members of the family, and had put up a stubborn and repeatedly losing fight to support her children alone, so that she had several times been destitute and the children had been cared for temporarily by the Children's Society. She expressed delusions with hallucinations which had been developing since March (according to her subsequent history Augustine's symptoms developed in August, or six months later). The mother was admitted to the *hospital two months after the child.*

However, before the child was aware of the mother's hospitalization, she showed a sudden change in her behavior.

Nurses reported that Augustine had become very excited, suspicious, and talkative. When called to the office she said:

> I was just talking about my case. All over Harlem everyone was talking about me ever since I was here. (*I can't hear it.*) Oh well, when I was here I told my mother that everyone was talking about me. I saw President Roosevelt in a car and no one greeted him or cheered him. (*How did you knows?*) I could tell by his pictures. And they were still talking about me—just as the President was going by. They say I don't go to the store; just as if they knew everything I was thinking, I have to go downstairs and wait at the door while they talk about me, looking me right in the face. They even talked about killing me. I told my mother but she made me go out. The brains of the woman! They talked so loud I could hear them through four rooms when they are behind the store. I'll be in the front room reading and they will say, "She is sitting there reading." They say that I am thinking—the impoliteness of them! The police should come and take them away, if they have to take the whole street. They are just that kind, so impolite. Because they talk about me. All my life I have to listen to them. (*Mother act queer?*) Yes, she acted awfully funny. I tell her, "Why don't she do something?" She would go to the window and look right out and not do anything. She called me "stinker" and then she laughed and called me all sorts of names.

Meanwhile, the examination of the mother revealed that she had a 4X Wassermann on the blood, but serology of her spinal fluid, of Augustine's blood and spinal fluid, and of the two sisters' blood was negative.

The mother after her admission made the following statements:

> They made me come here for the doctors. They want to persecute me like they did at home, reading my mind, electric sparks. They poisoned me; put something in my womb, in my privates. (*Blood disease?*) No. (*Blood test?*) Only here and after Augustine was born. It was all right then. (*Notice anything wrong with Augustine?*) Yes, since they were putting the sparks in her. (*Augustine heard voices in Harlem?*) Yes, she told me; said she had to go to the electric chair and I had to be hung. (*Hit her when she talked about it?*) No, I hit her before when she sucked her teeth and wouldn't obey, but when I found she was that way too, like I was, I quit. (*What do you mean, like you were?*) Well what they did to us with electric sparks. (*Who affected first?*) I was, in April. (*Did you tell A?*) No, I didn't tell her a word; she got that way herself. (*Did you hear the voices that she did?*) No, she seemed to notice things at one time and I at another. (*Never the same things?*) No. (*Tell you the President was around?*) Yes, she did, but I never saw him. (*Notice anything with the other girls?*) No, only Augustine. (*What is the trouble, do you think?*) Well, you ought to know. (*Why do you laugh so much?*) Because you do so much scenting around here. This is a police scent. I never knew anythink about all this junk before (laughs). Just like you imagine anything. Just feel anything; I feel anything you send me. Somebody's thoughts. I figure it the same way I can send something to you and you can get it. I can send anything you can receive. (*What have you been receiving?*) Dirty sheets (laughs). Just what people are sending. I heard a noise in my head like buzzing voices of people. (*What do they talk about?*) Want to know if I have a man or not. They want to know if I have played with a woman. (*Do they call you a woman lover?*) I don't know. They call me lots of things but the right thing. I don't feel like talking. I wouldn't mention it and you know and because you know and wouldn't mention it. The whole world knows it. (*Do they really read your mind?*) They can't read my mind; if they could read my mind they could find my husband and then he could work and then I wouldn't have six years of hard labor. Because I figure this way. (*How long has your daughter been nervous?*) Just since August. I guess it's from the same thing as me; I guess it's shocks. I think it's from upstairs. Somewhere in the house. They flash lights in

> the walls. (*What happened to your daughter?*) Now these children are mine and you people have taken them and put them out in the street on the coldest day of winter. Everything is wrong. These are my children. If he wanted to come back he would come back. When my husband asked for work, you should have given him work. Not make me work. There is nothing wrong with Augustine. They got her head full of things like mine; full of electric shocks.

She was silly, manneristic, seclusive, laughed loudly at times, and sat by herself and giggled most of the time. She was often actively negativistic.

The mother and child were interviewed together; each one claimed the other one was sick. Augustine had no patience with her mother and tended to deny her relationship; she refused to kiss her and was quite unkind to her. On the other hand, the mother was quite sympathetic with the child and said that her mental illness was a result of the same persecution from which she had been suffering. Each agreed that the mother began to hear voices and have experiences in March which Augustine could not understand, and that Augustine began having experiences in August that her mother could not understand.

The mother was committed to a state hospital and the child kept under treatment for several more weeks during which time she improved very much, passing first through an elated grandiose stage in which she was very productive, domineering over the other children, decorating herself and the ward, and manic-like in her behavior, but influenced by her delusions and complaining of hallucinations. After that she passed through a period in which she became quieter and developed excellent insight into all of her symptoms, working with them carefully with the physician, but all the time experiencing hallucinations and developing new symptoms and delusional beliefs almost as fast as she gained understanding of old ones.

She said:

> I stay awake most of the time on account of imaginations. I see all little faces like they tell a little story. They say something and stop. They are nobodies' faces. I don't see it that plain. They are saying everything. They curse sometimes, and say nice things. I don't really hear it through my

ears. I hear them all day. Just now it is quiet. But if I start to hear it and talk, it drowns it out. I know they are imaginations. I was born that way. And I didn't have such good care, because my mother had imagination, I think she was much worse than I am. She has not got a very good memory. She would say something and forget it right away. I believe she was born that way too. But I think I am getting over my imaginations. I believed so many things when I came here. I don't like to talk about them. It gives me an unpleasant feeling. I heard those voices all along. I couldn't believe they were imaginations like you told me. I kept trying to figure it out. But the things they said in Harlem were loud and plain. They can't be imaginations. Dr. B. everything I heard can't be untrue. I heard something say I'm so much goofer than everybody else, and everything like that. I imagined that I heard it in my head and that I was attached to a machine. It would make me do what I didn't want to do. It made me more better and made me feel better on account of getting over the imaginations. It was what I heard. I don't believe it. *(Machines?)* That is true. I do feel it. I do feel things on my arms and on my face and on my body. Like when I touch it on the skin and don't feel it but later on I do feel it. *(Sparks, like your mother?)* No; did she imagine that in the way I imagine these things? Oh, yes, now I remember and understand. She would get up in the night and make signs with her fingers. Maybe she was hearing things and trying to answer. She didn't tell me. *(Mother real mother?)* I know she is my real mother. I couldn't believe it before, on account I was born that way. I had imaginations. I didn't imagine it. I believed it. Now I don't believe it. *(Anyone doing this to you?)* No. *(Voices in Harlem?)* I still believe that. What do you think? *(Imaginations.)* How could it be so loud? *(You imagined it.)* You mean I imagined it was loud? Maybe that was it. Now you know I don't believe it any more. I was near the window and thought they were talking out loud. I went right to the window and looked right out and there wasn't anybody there. Now I have that straightened out. Can I get about the President straight? *(Someone else and you imagined it looked like him.)* Yes, that is it. I couldn't understand at the time why he came around in the funny old car he was in. It wasn't a very good car. Maybe it did look a little like the President and the rest had to do with my head.

> Oh now, I was just about to hear something and I shook my head and it went away. *(Try and listen.)* I just heard something say "I do." *(Your own voice?)* No, much lower. Now it is real quiet. I almost heard something and then I talked. I understand. Whenever I hear a voice, whatever happens, it drowns it out and if I try hard not to hear, too. Just now I was about to hear something and I put my foot down. Can't anybody help me?

Two days after the above interview she came to the physician and thanked her for the help she had received in getting to understand the voices and imaginations and also to thank the physician for arranging to have her sister on the ward with her. Of course her sister was not on the ward at all. She was transferred to the children's division of Kings Park State Hospital.

This is a remarkable case of paranoid schizophrenia in an 11-year-old pre-adolescent girl which developed almost concurrently with a paranoid schizophrenia in her harassed and schizoid mother. However, although the two were living together at the time, they experienced none of their symptoms together, and had nothing in common except that Augustine was annoyed at her mother for acting so silly about her own preoccupations and not helping Augustine with her persecutors, and the mother was distressed with Augustine's behavior, recognized it as abnormal and believed it was the result of the electric sparks which she hallucinated. One cannot feel in this instance that Augustine's psychosis was reactive to the mother's, as they seemed to be fairly independent in their preoccupations, although each was naturally concerned with her own life history and personal problems. This is not an example of *folie à deux;* on the contrary, each patient recognized the mental disturbance in the other and worried about it. This may be considered a dramatic example of two people who lived together and developed schizophrenia concurrently, but each rejected the other's psychosis and each elaborated symptoms and ideas in sharp contrast to the other.

THE CONSTITUTIONALLY SCHIZOID OR POTENTIALLY PSYCHOTIC CHILD

Kasanin and Rosen (17), in a statistical study of the characteristics of the schizoid personality, based their study on five arbitrarily chosen traits. These were: having few friends, preferring solitary amusement, being shy and followers in a group, being close-mouthed, and being sensitive. They found that the important factors associated with such a schizoid personality were overattachment to the family, maternal overprotection, paternal neglect, physical defects and anomalies, and an unsatisfactory heterosexual adjustment. It is clear that such a pattern cannot be looked upon as constitutional, except to the extent that the physical defects and anomalies are constitutional. Bowman and Kasanin (7) have also studied the constitutional schizophrenic from a statistical point of view. In coding etiological factors they found that environmental stress played a part in 81 per cent and that constitutional anomalies played a part in 13 per cent for the physical and 40 per cent for the mental. (They allowed for a multiplicity of factors.) They point out that many writers, including Kraepelin, Meyer, Hoch, Amsden, Bleuler, and Kretchmer, assume that a particular type of personality predisposes to schizophrenia. Other studies by them do not confirm this opinion from a statistical point of view. However, Bowman and Kasanin do hold for a constitutional type of schizophrenia as

> . . . . one in which there was a definite family history of mental disease, especially schizophrenia. The individual from very early childhood would be regarded as different, queer, or odd. He would seldom mix well with others. The oddity of the person would increase with the age of the person and there would be an indefinite insidious onset of the psychosis without any unusual environmental stress. The psychosis itself would be largely an exaggeration of the peculiar type of personality which the individual had shown since early childhood.

They believe that this forms a distinct group of schizophrenics. But in addition to either of these two concepts of the schizoid individual there is in common usage among some psychiatrists the term schizoid personality or schizoid psychopath that is not clearly defined and may include any mental deviation which seems to have some traits of seclusiveness, apathy, or emotional dulling.

Kasanin and Veo (18) have also shown that a study of the school adjustments of children who later in life become psychotic reveals a certain number of individuals who were known by their teachers early in their school career as queer, odd, and peculiar, or as shy and inconspicuous. Often such children were called "crazy" by other children. There are also the teachings of Meyer that the schizophrenic adult was often the unaggressive "model" child.

The concept of constitutional schizoid traits which is used here assumes more specific constitutional disturbances in motility, impulses, perception, and emotional and social relationships which are deep-seated, and carry back as far in the child's life as the history can be obtained, and which shows many of the features of schizophrenia but on a constitutional basis. Most of the time they make some sort of social adaptation except for periods of stress or strain to which such individuals are especially vulnerable, when acute psychotic episodes may intervene for a time but may pass away, leaving the individual with his former personality make-up and ability for social adaptation. There need be no evidence of progression of the splitting of the personality, or of deterioration.

Case 2. Jerome was a 12-year-old Jewish boy with an IQ of 85 who was brought to us from a boarding home where he had been placed only a few days before. The home was broken up as a result of a psychosis in the mother who had also been in our hospital just two months previously. The history obtained showed that the father was a miserly, domineering, cold individual who had no interest outside his home and his work but had no affection for his wife and children. The mother had always been a quiet, withdrawn individual whose "schizoid" traits were exaggerated by her husband's attitude. Her only interest was her two children: Jerome, aged 12, and Judith, age 7. Both children were recognized as severe problem children from an early age. Neither could make friends and they were not accepted by other children. Judith was the brighter, with an IQ of 102, but was awkward in motility, ungracious in manner, and tended to follow and imitate her brother. Jerome was considered sickly and received a great deal of attention for flat feet with corrective arch supports, for crooked teeth with wires to straighten them, for defective eyesight with glasses, for sinuses, etc. He was completely self-centered but devoted to his mother. It was stated that the father abused both children. The mother's breakdown was associated with delusional ideas that the father was going to kidnap the children, and was plotting with the family physician and a Spanish lady. She was brought from her home to the hospital, and said:

> I have imagined I was seeing things, and it really happened, for the last year I saw two cars circling the street—two colored men in it. I imagined I saw my mother. I was led to believe there was going to be a kidnapping. I have had a lot of trouble with my husband. He framed me and said I was mentally sick; as a result I did break down.

Her brother said:

> For 13 years she has had a miserable married life and now she cracked. She says her husband cracked her on the head. He tells her she is incompetent. He beat the child. She talked about kidnapping but she says she knows it was all imagination; she talked about spirits, but it was imaginations too.

Next day she stated that all of her ideas were imaginary, but later she said:

> My parents are supposed to be dead, but there is an old lady here that looks like my mother. This is a frameup. The people here look mentally tired. They need air and sun. You must have instruments to determine if they are mentally tired. Stop war and have peace. My husband kept money from me. He beat the children. There was talk of kidnapping—by a Spanish lady. She is here now. I feel all bruised. My husband almost raped me. He said he hurt his privates. I thought it was kidnapping—kidnapping me—so it couldn't have been my husband.

Her husband said:

> She has been nervous and depressed. She said a Spanish lady spoke to her; it seemed to frighten her. The family doctor told me she called him and said he was in cahoots with me to kidnap the children and that he would be assassinated.

She was removed to a private sanitarium. The two children were placed in separate boarding homes. Immediately Jerome complained of numerous ills, said he was a sick man, and that he required all sorts of attention. He said he couldn't move his arms and legs, and refused to eat the food offered to him. He was brought to the hospital at once where he said:

> I will tell you the whole story. My mother took sick. She had a nervous breakdown. They sent me to a home but I didn't like it. My head aches sometimes and I take pills. The doctor

> says I need fresh air. I had arches when I was a baby. I hear ringing in the ears. I used to get headaches and I always felt drowsy. I was nervous. I would like it best to be sent in a private home and have a doctor and nurse come out every day to see how I am. I get colds. I have sinuses. I get nervous. I get excited. If anyone speaks to me I can't stand it sometimes and I feel like yelling and screaming and I can't control myself always. I few times I hear somebody say, "Jerry" and I see no one. Sometimes I see a shadow. I see one right now. It looks like a man with a funny face and a gold thing. Whenever I look it follows me like Mary's little lamb. It is a little round thing with a face in it like the man in the moon and wherever I look I see it and sometimes I get so nervous I can't look. Sometimes I hear it say "Jerry" and when I look it is gone. Sometimes it opens its mouth and says "Ah-ah." I saw it for five years. Sometimes I get a feeling inside me and hear the voice and it makes me nervous. My mother said it was no shadow.

He seemed hallucinated and preoccupied during the interview; special effort had to be made to hold his attention. Examination of the boy revealed the asthenic habitus, an awkward gait, cataleptic features, exaggeration of the postural reflexes, especially the neck reflexes, poor vasomotor stability, a visual defect that was corrected with glasses, irregular dentition that was partially corrected, and flat feet. It will be noted that the center of his preoccupation was hypochondriacal. He centered all of his interest on his own body defects, which would seem to indicate oversolicitous concern of the mother in this direction. This is what Kasanin and Rosen (17) have emphasized as the basis for the schizoid make-up. It also recalls David Levy's (21) concept of maternal overprotection. On at least two occasions, however, this hypochrondriacal interests developed into delusional trends. Thus, while in the boarding home, he complained that he could not accept the food, he could not eat or rest, and that he had to have a doctor that would attend to his feet, and finally that he could not move his feet and hands and that he was having funny sensations in the body. On the second occasion he freely elaborated his concern with the ringing in the ears and specks in the field of vision as voices and shadows which he integrated together, so that he believed that the shadow followed him and spoke to him and gave him funny sensations in the body. He claimed that he frequently had these preoccupations for five years, but later he denied them entirely. We also learn that he blames himself for his mother's sickness, saying that his nervousness and behavior drove her mad. This is what he had heard his father say. However, he also blamed the father for the mother's illness, claiming that the father treated the mother badly. However, the schizoid features in this boy are seen not only in his psychological mechanisms but also in his motility and his poor social adjustment, his tendency to lose his hold on reality in times of stress, and his tendencies for frank projections and negativisms. He gained considerable insight with psychotherapy, and was sent to an institution for normal children. His sister is also reported to be a severe problem, but she is still only seven years of age.

Case 3. Raphael was a 14-year-old Porto Rican colored boy, who was sent to us by his school because he threatened to stab other children with knives and said he had invented a way to blow up the ocean and to set the school on fire. There may be some question as to whether this boy's father was a definite case of schizophrenia, although he had been diagnosed as such by two hospitals and has remained in a hospital since he was first admitted in 1929. However, his psychosis was associated with convulsions four or five years after its onset. Before admission Raphael was examined by the school psychiatrist who reported:

> He said that he hears voices talking to him and he sees his dead uncle at times, and God. He stated that the voices tell him what to do and he has to do what they say or he feels "funny like—like falling—they would throw me down or something." He stated that the voice once told him to get under the propeller of an aeroplane, but he did not do it. He said that the voice last night told him to get out of bed and work on his test tubes. When he arose he noticed that the picture of his dead uncle was talking to him. In the classroom the voice tells him to get up and walk around the room. He said that the voice seems to come from the floor. He says he gets in trouble in school because his temper gets him. "Ever since I was small I was like that—my father was like that." He stated that he once gave a knife to his teacher for fear he would kill a boy when angry.

His father was admitted to Veterans' Hospital in 1929 (Raphael was eight years old) as a transfer from a state hospital. His mental signs developed in 1924. He then became suspicious, threatening bodily harm to anyone who irritated him, and threatened to kill his wife; in the hospital he threatened other patients. In 1929 he had convulsions, about two a month.

After admission to Bellevue Raphael said:

> I talk to myself about what I am going to do, like inventions, like doing mechanical things. I would make a man to walk about, of tin, that is all. I always hear voices. They say don't do this and don't do that. I can't recognize the voice; I know it is somebody in my family but that it all. I believe everybody else would hear them if they tried. (*Fire?*) There was some powder a boy had. He took me to his house and put it in water and it burst into flame. I thought I would put it in the ocean. The ocean is salt water and I thought it would blow up. Then the world would burn up. That is what I said that scared the teacher. (*See things?*) I have a picture of an uncle. My mother told me he is dead. I don't know him. It seems like the picture talks to me but I think I am dreaming. It keeps opening and shutting his mouth. I know his voice. I know even my parents' voice, even my mother's if she were dead. My uncle just said don't do this and don't do that. When I am in a temper he says go ahead and do things. (*If you have a temper tantrum and wanted to kill somebody does the voice tell you to go ahead?*) Yes, I have ideas but I am too scared. I couldn't do it to the boy named Salem. He is an Arab and he hates me because I told him I was a Porto Rican. Every time he sees me he sticks me with something. I believe he plans something, maybe to get me and kill me. I told my grandmother about the voices and she said I might get like people who hear voices and can tell what will happen. (*Father like that?*) No, he was sick in a hospital. He was shell-shocked in the war. He tried to eat glass. He never talked at all. I don't know if he heard voices. He said he saw a white bird and that a white bird was doing things to him. He dreamed things like that. He believed it. I am like that. I dream things. I think I am awake but I believe that I am not awake. I have seen God. I can't take my eyes off the pictures. I have plenty. He had the same beard and everything. They are real pictures of saints in my room. I look at them before I go to sleep and I can't get them off my mind. I saw them here, there,

> and everywhere. [*Eidetic images?*]. Maybe it is because I look at them too much. If I look at it steady it goes away. In case I look at the picture a long time and then turn my head away I can still see it. I don't think that is nothing special but I think the voices are real. I can hear voices come from here and from there. I only hear it when I am quiet in my room. I spend my time in my room with my inventions and my radio. I don't like to be alone. I don't like the voices because they tell me to do things I shouldn't and it makes me angry. Then, when I want to play with my inventions that aren't harmful, they say, "Don't do it."

In the wards he was emotionally unstable but generally friendly; he was usually busy with routine but talked of his symptoms rather freely. He claimed he got in trouble in school because of a boy that hated him and had a plot to kill him. He had been concerned with the possibility of killing this boy. He saw some visual phenomena when alone in his room which seemed to be eidetic images and which he recognized as phenomena and nothing very unusual, but still he occupied himself with them. He also heard voices which he believed in, but still realized that only crazy people hear voices. They told him to do things he should not and this made him angry, or they told him not to do harmless things he wanted to do. Sometimes when he was angry and wanted to do something wrong, such as killing his enemy, they encouraged him. He was interested in what he called inventions and showed considerable inventive ingenuity but mostly of an impractical nature. He was interested in contacting dead people and in religious personages. He knew his father was psychotic and said several times that he may be like him. He was ambidextrous and with the left hand wrote in the sinistral direction and apparently did not realize it. He had a severe reading disability. His IQ was estimated at 79 per cent but there was a great deal of scattering. He was taken home from the hospital by his mother against advice, apparently did not get in trouble during the summer, and has been making a poor but inconspicuous adjustment in the schools during the present school year.

This child's constitutional inferiority is seen in his low mental level, his unusual ambidexterity, eidetic imagery, and his poor emotional balance. His tendency to utilize these functions as escape from reality is sometimes augmented by rather free auditory hallucinations which direct his behavior into unrestrained aggression. He realizes these experiences are abnormal and suspects that he may be mentally sick like his father. This increases his emotional stress. Nevertheless, he has made a fair adjustment in the schools.

These two cases may be considered as examples of profound constitutional disturbances which involve the physique, motility, perceptual functions, emotional development, and the personality as a whole, with tendencies for episodes of a schizophrenic nature, due either to environmental stress or adolescent crises in children of psychotic parents.

CHILDREN WITH INFERIOR ORGANIC CONSTITUTIONS

Case 4. Cecelia, a six-year-old Jewish girl, was sent to us on court order as a neglected child. She represented a typical case of cerebellar agenesis. She was not defective. Her actual IQ was hard to determine because of her handicap in motor control and in use of the pencil and speech and because of her defensive mechanism with which she resisted all forms of examination. Her mother had been first committed to a state hospital in 1912, 16 years before the birth of this child, and she had been removed from the state hospital in 1927 in a dissociated catatonic condition by her husband who had accepted the neighborhood advice that the birth of a child might cure her. This child was the result. An older brother was normal. This child was raised in the home in the presence of the psychotic mother who remained in the home until only a few months before Celia was brought to the Children's Society on complaint of neglect made by neighbors. Her behavior and psychology were such as is typical of a child with a defective cerebellum; she was clinging to adults who would protect her from exposing her weakness or of losing her balance. There was no other member of the family with this condition.

Case 5. Loretta was a three-and-one-half-year-old child with an IQ of 65, brought to us from the Children's Court on a charge of neglect. The father had also been in our hospital, when this child was only a few months old, and was committed to a state hospital with schizophrenia. A four-year-old brother was normal. The mother had been arrested and served sentences for prostitution.

This child had a corrected meningocele, internal hydrocephalus, epilepsy, and mental defectiveness. There was no history of any similar condition in the family. The neglect in this case was due as much to the irresponsible mother as the psychotic father.

Case 6. Concetta was a 13-year-old Italian girl who was referred to us by a home-placing agency. She had been to numerous clinics and her case has been diagnosed as some form of brain disease with mental defect. More adequate examination showed that she had a Parkinsonian syndrome, rare in children and therefore not recognized. Her intelligence was average with an IQ of 100, but the Parkinson facies and the retarded responses gave an impression of mental deficiency. She was the oldest of four children. The others were normal. As an infant she had been sick a good deal with obscure illnesses which were not diagnosed. The father had always known she was different from other children, from the time she started to walk and talk at the age of two, and that she was getting worse. She got along fairly well at home, especially when she was receiving hyoscine under a doctor's care. The mother first became sick five years before when this child was eight years old and she had three admissions to the hospital subsequently. When she was home she neglected the children. This caused Concetta to suffer especially because she did not get medical care regularly and did not get proper care at home, and because the burden of the smaller children fell upon her.

It cannot be argued that any of these three cases is evidence of hereditary taint in a family with a known case of schizophrenia. They show only the type of organic defects which occur but which are in no way specific. The reason for institutionalization in each case was neglect due to psychotic parent. All the other siblings in these three families (a total of five) were normal and had been placed in boarding homes where they made good adjustments.

Children with Mental Defectiveness

Several of the children who have psychotic parents have been mentally defective, but not more than might be anticipated. Canavan's studies showed that there were fewer mental defective children in families with a schizophrenic parent than in normal families. These are reported, however, to complete the records. Certain other important problems are illustrated by these case histories, which further justifies a discussion of them.

Cases 7 and 8. Joshua and Ellen B. were brother and sister. They were sent to us by the Children's Court as neglected children. The father had reported that his five children, these two and three younger ones, were neglected because of the mental condition of the mother. The mother was committed to a state hospital with a diagnosis of schizophrenia and mental defectiveness. The three younger children were considered to be normal and were placed by a child-placing agency. These two older children were 10 and 8 years old, and appeared to have suffered more than their smaller non-defective siblings from the neglect of their mother. Examination showed that they were defective, the boy having an IQ of 61 and the girl an IQ of 66. Both children appeared retarded out of proportion to their mental defect, and were blocked, inhibited, fearful, unresponsive, and furtive. At first they could hardly be examined. Previous examination of the boy elsewhere had given him an IQ of 48. The boy was bewildered and at first was entirely unresponsive, but he gradually gave a confusing story that his mother had a boy-friend and his father took an ax to kill him, etc. This seemed to be a confused retelling of some of the mother's delusions. He was very much concerned about his mother and seemed to sympathize with her and worry over her welfare. The girl was less concerned with the mother, more content to accept the new situation, and seemed brighter and less inhibited. One got the impression that the boy, although clearly constitutionally inferior, was not as defective as his present functioning would indicate; that he had suffered both by deprivation and by emotional stress from the neglect in his poor home and from the distressing mental illness of his mother to whom he probably had the closest emotional relationship because he was the oldest son.

Cases 9 and 10. Edward and Eric were two brothers, seven and eight years old, respectively, who were sent to us by a home-placing agency because of their apparent mental defectiveness. The history showed that the mother was a mental defective (her IQ had been estimated after the onset of her illness as 44) and that the father had died in 1934. After that time the mother withdrew entirely from all interest but these two boys. She kept them about her every minute and finally tried to keep them in bed with her all day as well as night. She became completely self-absorbed, seclusive, irritable, and developed delusions of a sexual and persecutory nature, and was committed to a state hospital in March, 1935, with a diagnosis of schizophrenia. The two boys were placed in a boarding home and were found to be very retarded and peculiar in their behavior. Their speech was practically undeveloped, they would wet and soil themselves, they were unable to play with other children, and seemed unresponsive to the boarding mother. Our examination indicated that the younger one was defective, had an IQ of 64, and relatively little emotional awareness of his problems. However, the older one was able to score an IQ of 81 and was responsive, although tense, fearful, anxious, and uncertain of how to conduct himself. It was our opinion that the younger child was defective, while the older one was potentially a normal child whose normal development had been retarded by his abnormal contact with his defective and psychotic mother and further by his defective brother. The older boy seemed to respond to the ward routine, while the younger one remained very retarded and self-absorbed. Separation of these two boys was recommended. The older one was placed in a normal boarding home and he showed evidence of gradual improvement.

One learns from these children how a child may appear defective when he is merely retarded because of his contact with a schizophrenic mother who tends to withdraw him from the natural stimuli for development. Of course it is true that all of the children were constitutionally inferior and that they were, therefore, undoubtedly more vulnerable to such unfavorable influences. In the case of the first family we are under the impression that the older child suffered the most because he was older and more able to realize the abnormal behavior, because he had been exposed to it longer, and because he had the closest relationship to his mother, being the oldest son.

We have thus far considered those cases which offer the best evidence for constitutional inferiority in schizophrenia. There has been one case in which a mother and daughter developed schizophrenia concurrently. There are two cases in which the children have shown deep-seated disturbances in personality, with some traits which may be defined as schizoid and with episodes which might well be considered psychotic but which seem to be transitory. There have been three cases with organic disabilities, two of which appear to be congenital and the third may have been acquired. It is not clear whether a hereditary factor of a polymorphic type has been important in these cases, or merely that they have come to our attention because they became neglected when their mothers became ill, or both. Four children who were mentally retarded had mothers who were both defective and schizophrenic. They suffered not only from the constitutional deficiency but from neglect and association with abnormal persons in the developmental years.

We will now turn our attention to a longer series of cases in which psychogenic, situational, or emotional factors which have resulted from the psychotic behavior of the parent seem to have led to behavior problems in the children.

FOLIE À DEUX

Case 11. Kenneth was a 12-year-old boy with an IQ of 90. He was an illegitimate child. The psychotic "parent" who played such a significant part in his life was his maternal grandmother, Mrs. M. She was first suspected of being mentally abnormal in 1924 when the family came to the attention of the Children's Society because the oldest daughter, Ellen, was illegitimately pregnant at 14 by the janitor. This daughter made complaints of being mistreated by her mother. Mrs. M's. erratic attitude toward this daughter continued after the birth of the infant which was our patient Kenneth. She had apparently been married four times and there was some question as to her morality. Her eldest child was probably illegitimate. Her first marriage was bigamous. In 1925 she was accusing agencies of mistreating her. She threatened violence. She also threatened to kill her daughter, and an effort was made to send her to a hospital, without success. She often phoned the Children's Society and pretended to be someone other than herself. In 1926 she threatened to shoot officers of the Children's Society. In 1927 she had been annoying the Judge. Meanwhile, Kenneth had been committed to a child-placing agency but the grandmother took him in 1929. In 1935 she complained that her fourth husband was abusing the child. Ellen, the mother of Kenneth, had disappeared and the second daughter, Dorothy, had left home because the mother accused her of intimacies with her stepfather. Mrs. M. had been going to court for three years trying to get support from her fourth husband whom she said worked in a soap factory, although he could not be found by any agency. She had been writing Mayor LaGuardia and Mrs. Roosevelt. She was sent to an observation hospital in 1935 by the Family Court, but was removed in four days by her lawyer. She was diagnosed as a case of paranoid schizophrenia. The schools noted that Kenneth had developed a heart disease and she had been ordered to send him to a clinic for examination, which she refused to do. For this reason a charge of neglect was made and he was remanded to the hospital. He said,

> My grandmother was supposed to take me to a heart clinic but she didn't. I don't have heart trouble because it don't pain me. She was busy and she forgot it and she couldn't do it. I was sick. She wanted to but she couldn't. (*Your grandmother imagines your grandfather is around?*) He is, I saw him myself. I know him. We have a picture of him. (*When did you see him last?*) When I was eight years old (*Couldn't be sure?*) Well, I don't know. (*Why does your grandmother have a lawyer?*) To win the case. She has had a case three years—to make my grandfather pay. They put her in the hospital last year but she got out in five days. We don't know what became of my mother or father, but I like my grandmother best because she always took care of me.

He was tense and on the defensive, and showed that he had adopted his grandmother's delusions. He quoted her on all points and tried to support her with evidence of his own. After three weeks the boy seemed more natural and discussed things more freely. He said:

> I like it here, still I like to go home. I miss my grandmother. She hasn't come to see me and I don't know why. I like to play here and go to school. Still I like to have my dog and my grandmother and go to Scout meetings. (*Is your grandmother nervous?*) Gee, that is what I am trying to understand. But you see after that trick they played on her and put her in the hospital. You see they said if she didn't go to the hospital they would drop the case, and they did. (*Do you think it is so bad to go to the hospital for examination?*) No, I don't think so. I don't know why she thought it would be so bad.
>
> My aunt left because of the trouble between my grandmother and grandfather. I wish she hadn't. That is when all the

> trouble started. My grandmother got excited on account of the cockroach powder in the lettuce. She said he must have put it there to poison us all. I heard her tell my aunt. I looked at it and smelled it. It was just like the cockroach powder. She wouldn't let me taste it. It looked like he wanted to kill us. . . . After that she made him get out. He did a lot of things to aggravate my grandmother. He scratched the antique and twisted the toilet-seat and spilled the dirty water from the bird-cage. I saw it myself. She doesn't want him back but she wants him to support us. It was all right when my aunt was there. (*Why doesn't she come back, now that he is gone?*) On account of all the trouble in the courts. My grandmother thinks he is working in the soap factory. I went by there and was looking around to see if I could see him. And I saw a man looking out the window. He had a yellow cap just like one my grandfather had three years ago. He shut the window fast when he saw me. I would swear it was him. I hadn't seen him in two years. My grandmother heard he works at a restaurant in Coney Island, too. Twenty-eight men told her; I heard them myself; they said he worked there extra like. (*Why won't your grandmother accept home relief?*) She don't want him to get away with alimony. (*What is alimony?*) His wages. I wish she would. I hate all this business. Then I wouldn't have to be here. I could go home. We would get relief, she would stop all this court trouble. We wouldn't have no more trouble. She talks about it too much. She works around quiet or lies down and thinks about it all the time. I can see she is worried all the time. I try to help her by taking my dog and going to the store. Yes, she has written to the President and Mayor.

This case seems to have all of the typical features of a *folie à deux.* The grandmother has a typical paranoid psychosis; the grandchild, who is deeply attached to her and has no other deep attachment, has accepted all of her delusions, helped her check her evidence, and has attempted to contribute new evidence to confirm her beliefs. However, when he is separated from her, after an initial period of anxiety, he shows the superficiality of his beliefs and begins to correct them and wonder himself if there isn't something wrong with his grandmother. He states that he wishes she would give up the litigations and let them live a normal, peaceful life.

IDENTIFICATION BETWEEN SON AND FATHER

This is one of the most remarkable group of cases in this study. It has already been pointed out that in the majority of these cases the psychotic parent was a mother, which is undoubtedly an expression of the fact that the mother-child relationship is a much stronger one than the father-child relationship. That disturbances in the parent-child relationship are big factors in causing the behavior difficulties in children of psychotic parents seems to be further borne out by this group of cases, where the significant relationship is between the father and son.

Case 12. Alexander was a 14-year-old boy with an IQ of 99, whose father was brought to Bellevue Psychiatric Hospital in 1930 at the age of 29 years. The father stated he was being framed and sent to the hospital because they wanted to get rid of him. He had not been able to sleep. He believed that his wife was going with other men and worried over this continually and lately had been carrying a gun to kill her. He said:

> I don't know why they brought me here. My stomach doesn't feel good. I don't know why I am carrying a gun. I couldn't tell you why. I am not worried about anything.

He was irritable, restless, and later became noisy, abusive, and violent. Later he said:

> My wife is unfaithful to me or something like it. I can't prove it but I know it by people's talk. I heard them talking about her. She was always a good girl until lately. I am not working for the past three months. Her people are doing me dirt since I got married to her ten years ago. They are Jewish and we are Italians and of course this is worrying me. My doctor gave me medicine to sleep. My wife is the one who told me to carry the gun. She told me to carry it to protect myself from her relatives. She said that they might kill me. She is innocent of all this. You can say that they sent me here because they are against me.

He was committed to a state hospital and has remained there until the present time. Alexander was then seven years old and became a problem at once. He was referred to the Juvenile Institute and treated by them as long as they were in existence. In 1934 he was brought by his mother to our Mental Hygiene Clinic with the complaint:

> He is always troublesome. He does not get along in school because of bad conduct. At home he is disobedient, troublesome, easily provoked. He has no friends because he is disagreeable.

Alexander said:

> I don't like schools. I like movies. My friends won't play with me. I don't know why.

He appeared restless, distractible, irritable, and on the point of temper outburst. His mother came with him again in 1936 and said she could not stand him any longer. She complained that he had violent outbursts of temper, was a truant from school, and was quarrelsome. She said that his teacher feared for the safety of other children. He attended movies a great deal. He refused to attend any clinic. He had assaulted his mother and brother. He resented authority and discipline. In an interview he appeared unresponsive and indifferent; he would not talk. His mother said:

> He is quick tempered and doesn't like to go to school. He is disobedient to me and his teacher. I give in to him a lot. He is the oldest. I used to give in to his father. He has been a problem since kindergarten. He got worse since my husband went away. He was frightened then. My husband used to beat me a lot. My husband acted queer all the time I lived with him. Later he got better—the child remembers it all. For a time Alexander accused me of making his father crazy. His father had told him that. He doesn't say that any more. He was against me for a long time. He doesn't mix much; doesn't have boy friends. Goes with girls now—I never saw him play with himself. Only comes home to go to bed, and rarely eats at home. Doesn't get along with his brother.

The boy admitted he did not eat at home, not liking the way his mother cooked, and would go out and earn money and buy his own food. He said he was not like his father since his father thought the food was poisoned. But it was noticed when teacher offered him candy he would not take it unless it was wrapped in paper. The boy said:

When my father went to the hospital my brother was seventeen months; now he is six. My father got so he wouldn't let my mother go out of the house. He locked the door and took the key; he had a gun to protect him. He said they were after him; I heard him. He said that somebody was my mother's lover; he said, "Who is that kid—is that your sister's kid?" He knew me but the kid was just born then. He would forget about him; he was just a baby but he had known me for eight years. In school when my father was home I was just like any normal kid. Since he went away they are careless about my report card. They say it is a mistake but it is just my card out of 25 cards. My father would tell them to stop hitting, and also holler at them. That is the only way they understand; they don't care one damn thing about you. All they are worried about is the salary check. The other fathers at least come—that is why they are good to them.

I thought that from school they called up here. I thought they said I was no angel, but a devil. I thought this place was for the mentally sick. I felt like it this morning. I felt like killing the kid outside; he laughs like a hyena. He can't hurt me but I don't like him. I will get crazy among these people. My father wasn't crazy until he went to Pennsylvania, but somebody hit him over the head with a bat. I fell on my head so many times. I know there is something the matter with me. The psychologist found out. I feel strange. To other people you look strange like that kid. Nobody wants to start with me. He starts up quick, he goes bang on my back. I could do plenty if I lose my patience. I could kill him. I could choke him, hit him on the back of the head, step on him.

My father heard strange voices. The doctor told my mother and she told me. I wasn't there. I never heard voices. It is imagination. The teachers talk about me. The truant officer told me. They are not against me; I pick on them sometimes.

I know there is something wrong with my father but he could be in a better place. He was locked up in a cage with benches. I would put him in a hospital all by himself, no one to bother him. I liked my father best. I always like him best. Anything I wanted he gave me. Some say the wife or the husband is to blame. My mother was good to him. He was in bad company and you know where he landed. The friend who told him not to work was in jail four years. My father never wanted to listen to anybody.

> Nothing is wrong with me. I was brought here to see why I am bad. I don't pay no attention. Sometimes I worry about my father. I always liked him, my father, better. My mother used to go to her mother's house and I was always with my father. I used to go to the saloon and call for him.
>
> About two years ago I began to dream. I used to remember everything my father and I did. We went down to Coney Island, and I got lost and he spent $40. I dreamt that I happened to be sent there to the hospital where he is and he was in the cell next to me and he happened to grab the guard and get the keys and run out and then we started a riot there. We let everybody out and we started a new life. We got a steamer and went to some tiny place and we are still there. He was all right there. He was all right if you get to know him. He went around with some strange girl. Everybody went with her. There is nothing wrong with him; I want to go to the same place with my father. I want to stay with him. I am not sick but I want to stay there. I don't hear voices; I am not afraid of nothing.

It was difficult in this case not to let oneself be convinced by the boy himself that he was mentally sick, as was his father. The identification processes are clear.

Case 13. Joseph was another 14-year-old boy with an IQ of 97. He had one half-sister, 18 years old, who was probably an illegitimate child. He also had a younger three-year-old sister. He was the only son. He was before the Children's Court on a delinquency charge for the second time. On the first occasion the charge had been made by the mother because the boy had become unmanageable and antagonistic after his father had been sent to a state hospital. The second charge was a more serious one. He had been held for entering a house and stealing $2000 worth of plate silver and two loaded guns. He had been found with the goods and had implicated two younger children upon whom he attempted to pass all the responsibility. His father had been committed to a state hospital in December, 1934, at the age of 41. The father's psychosis had developed gradually over four years. He thought he was followed, and was suspicious. He wouldn't sign his name, thinking it a trick to make him give up his property; he was jealous of his wife, he sat in the house and refused to let the children go to school until the Children's Society intervened. He was fearful of poisonous food. He listened to the radio, thinking it was about him. He was committed to a state hospital where it was said that he had systematized delusions. There he said:

> The children's mother wants to get me out of the house. I'm not married to her, and she has a seventeen-year-old girl by someone else. This child has a baby and they want to put it on me.

He told an elaborate story. He felt that the woman downstairs had something to do with it. He was insistent, saying that the mother of his children was not his wife although he lived with her for 14 years.

Mother said:

> My husband had his first breakdown when the last baby was born. He collapsed then although he had imaginations before that. He thought someone was going to ruin him. He thought that I would not live through the birth. I've had trouble with Joseph about two years, even before his father went to the hospital. He was expelled from school for being abusive to teachers. The father thought he could do no wrong. Then the father kept him home because he thought he was being abused by the teachers. This summer he got abusive, wanted to run the house, wanted to take the father's place. He blamed the Children's Society for sending the father away. He said we had framed the father. This was the same talk as the father. Then he was taken to court and was all right for a week. Then he got in company with some boys and got in trouble. He would never tell me who he was with or what doing. When the father first went to the hospital he threw terrible tantrums; if he couldn't have his own way, he would throw things, throw himself on the floor and scream.

Joseph said:

> I was left back in school once because my father kept me out for two months. He said the teacher tortured me by keeping me after school. I told him it was because I didn't do my lessons. The truant officer came and had a fight with my father and took me to court and they put me in the Catholic school. But he didn't like that; said he didn't believe in the religion any more, and kept me from school and church. He used to think everybody was against him; he thought he was being

> followed; he listened to the radio. He was against the whole family. One day he had a fight with my mother when I was out playing and she called the ambulance and told him she was taking him for a ride and took him to the hospital. I knew he was losing his mind. I knew it for about a year and a quarter but I wasn't afraid of him because he liked me although he hit me a lot. He tried to help me. I was mad at my mother for sending him to the insane asylum. Then I used to stay out late and my mother would hit me and I would get mad and curse.

On our wards and in our school rooms it was seen that this boy was very self-centered, with a strong sense of his own right and superiority, a feeling that he should be catered to and appreciated by others. It was hard to adapt him to any routine or rules that existed for the good of a group. He always wanted to be petted and have all sorts of favors. If they were not granted him, he became irritable and demanding. He made an effort to gain attachments from nurses only to use them to his own advantage. He considered himself abused if he could not be favored above others. An effort was made to explain to him that his exalted ideas of himself were the result of mistaken ideas of his father which he was adopting and actually elaborating; but this only resulted in an acute emotional outbreak in which he became angry, defiant, infantile, and asserted his right to feel himself superior to others both in the hospital and at home. He claimed it was his right to chastise his sisters for bad behavior, which was certainly not worse than that which led to his last charge of delinquency. When this was suggested to him, he again attempted to pass the responsibility for that upon the younger boys who were associated with him at the time. The father died in the state hospital while Joseph was on our ward.

It had been hoped that the death of the father would reconcile him to his father's fate and make him accept the father's illness as real. My previous study (2) with reactive psychoses to mental disease in the family led me to conclude that the death of the psychotic loved relative may facilitate recovery in the reactive individual. In the case of this child, however, it seemed at the time only to crystallize the personality pattern in the boy who was prone to identify himself with the father and by virtue of the father's death he actually tried to replace him in the family circle and took the attitude that he should go home, not to assume more responsibilities but to have the privileges of being the man of the family and eject his sisters for their wickedness, and boss his mother about. The courts paroled him to his mother and he returned home and to school and has made a good adjustment in both places.

Case 14. George T. was a 12-year-old boy with an IQ of 94. This boy's history has already been discussed by the writer and Schilder (3) in our studies on aggression in children. His father was committed to a state hospital in 1930, when this boy was six years old, after an effort to shoot the mother. This was prevented by George jumping on his father from behind and screaming, "Pop, don't shoot." The father had been developing paranoid ideas for some years but had been kind to the children, while suspicious and deluded against the mother. The mother in a life of impossible discord, being herself an inadequate and bewildered woman, was irritable and impatient with the children. There were five children, George being the middle one. All of the children had been poorly trained, fearful, anxious, and neurotic. Two years subsequent to the commitment of the father, George developed a skin condition for which he refused to go to the hospital for care, and had to be taken to Children's Court and sent to Bellevue to obtain the treatment he needed. It became evident that he had all this time blamed the mother for the father's outbreak and for committing the father to the state hospital, and felt that the treatment for his own skin condition was only a ruse to send him away also. He was treated many months in Bellevue and the Psychiatric Institute, where it was evident that his unstable, irritable, anxious, suspicious behavior was a result of the father's illness and his own identification with the father. He had also sustained two skull fractures before this time, one by trying to escape from the mother in some disciplinary crisis, by running out on the fire-escape and falling three floors, and one by being run over by an automobile. However, in the opinion of several doctors who examined him both at Bellevue and the Psychiatric Institute, there was no evidence that his behavior had been modified by any real damage to the brain. He was subsequently placed in a boarding home and removed from there by his mother. The father was paroled from the state hospital but was far from well and would not live at home, fearing he would be returned to the state hospital. From time to time he came home to harass the family and finally to sharpen a large butcher knife in the presence of the children while he made veiled threats. At this time George became very irritable and fearful over some minor quarrels with his brother. He wanted to sleep with a ball-bat under his pillow and, when this was taken from him, he became violently angry and attacked his brother with a hatchet, and was returned to Bellevue. He was intensely fearful, anxious, and suspicious, and said that everyone considered him crazy. After admission to the hospital he became very anxious over his mother, expressed a fear that his father would kill her, and when he could not be discharged to his mother he showed a violent antagonism to the ward physician, threatening to kill her. In these episodes his mother would look on with awe-stricken expression and say in his hearing, "He is just like his father," to which he would rejoin, "Yes, I am and it serves you right. It is your fault and I will never speak to you again as long as I live." He was again transferred to the Psychiatric Institute where he remained for a long period of treatment.

The first case of this group, Alexander (Case 12), developed an identification with the father because he was the oldest or only boy. In Case 14, we have a middle boy in a group of five children. Perhaps the identification in this boy was stronger than in his brothers because he had just passed out of the years in which the Oedipus complex is significant in the personality development, and these years had been coincident with the evolution of the father's psychosis. He was five years old when his father went to the hospital. This same principle seems to be evident in other cases which will be discussed. Also, George, in contrast to his brothers, was the one that figured in saving the mother's life, thereby causing the father to be committed to a state hospital.

Case 15. Rubin was a 12-year-old Jewish boy with an IQ of 81. He had been before the Children's Court twice on a charge of delinquency because he entered a house with other children and stole property. In his family there were six children ranging from 8 to 22 years of age. Apparently none of the other children had given any trouble. The father had been in a state hospital since 1931. At that time Rubin was seven years of age. The father had always been a seclusive, reticent individual, indifferent to society. He found himself inadequate to care for his family. He had become increasingly hypochondriacal and in 1931 had been admitted to a general hospital with the possible diagnosis of pleurisy. He jumped out of the window at the hospital, and was committed to a state hospital. The diagnosis at first was manic-depressive psychosis, but it was subsequently changed to schizophrenia. He was restless and suspicious, talked to himself, appeared to be hallucinated, but would not speak of any trends. He has remained in the hospital for five years, growing worse. The mother states that Rubin visited him two years ago, that he was the only one of the children that talked about him or wanted to see him.

The boy said:

> I get left behind in school because I am bad. I don't do my work. I stole some things with some other kids. I didn't really the last time, but I meant to and the other kids got there first. My father is in the state hospital for four or five years. I am going to see him when I am sixteen. I remember him. He was all right. He let me alone. They say he is crazy. But I am not down here for that. He has nothing to do with me now. He was a builder and fell down and hurt his head. He was mixed up and he got sick. (*Are you the only one in the family that gets in trouble?*) Yes. (*Only one that is hard-boiled?*) Yes. (*When did you get like that?*) When my father went to the hospital I got lonesome. I wasn't hard-boiled before. (*What does it mean to be crazy?*). To be nuts in the head. You get mixed up and then you get crazy like that kid here. Not all of them but two or three. Some people are born that way and maybe they fell on their heads when they were babies. They have to be put away or they may kill somebody. My mother wanted to take my father out but she couldn't because he might kill somebody. My father liked me best. That is why I am the only one in the family that got hard-boiled. He told me he did. I am nervous. I bite my nails. I got hit on the head nine times; four times with a rock and I was playing in the park and fell.

The boy appeared very defensive; he assumed a hard-boiled air and got angry and defiant when asked about his father. He admitted rather boastfully that he was bad, poor in school work, and a liar. He thought that his father's condition was due to a fall on the head. He said that he also had nine blows on the head. He was hesitant when asked if he thought that this explained his behavior. He said he was his father's favorite child and that he looked forward to being 16 when he could go visit him. He believed that his father would kill somebody if he were allowed out of the hospital. He looked at other children on the ward with a critical air to see if they were crazy and he believed that several were. He believed he was picked on by other children who also picked on a deaf-mute child, and presumably for the same reason.

This child, like Case 14, was the middle child of a large family, but was just evolving from early childhood as the father was developing his psychosis.

These four cases would seem to show quite significantly that there is no clear evidence in this instance for constitutional factors in the coincident psychosis of the father and the behavior of the son, although the beliefs and emotional reactions have many identical features. In each case we are able to see clearly how identification processes in the son with the father have accounted for the development of abnormal emotional attitude in the child. The normal course of the Oedipus complex is interfered with. The paranoid father develops his delusions against his wife and the mother of the boy, uses the innocent child to express his delusions, and enlists the sympathy of the child at a time when the child has no judgment and when the child already interprets all actions as aggressive.

Reaction of a Daughter to a Psychosis in Her Mother

The identification processes between the daughter of a schizophrenic mother and the mother does not appear to be so definitely defined as it is in the case of the son-father relationships which have been quoted. The daughters do not seem to tend to take on the psychotic beliefs and attitudes of the mother and attempt to replace the mother in the family as sons do. On the contrary, the daughters seem to resent the psychosis in the mother, the loss of the mother, and the disturbance in the normal home and family life. This is in keeping with the fact that the mother's function in the personal life of the child starts much earlier and is a more fundamental one, that the loss of the mother really disrupts the whole family life, and that the presence of a psychotic mother leads to more distress in the family life.

Case 16. Helen was born in a state hospital 14 years ago. Her mother first came to Bellevue when she was five months pregnant with Helen. The mother then had been mentally sick for a year and had another child less than two years old. She neglected this child, would not go out, was careless, untidy, and imagined she was being watched. The mother had been raised by a foster-mother who took the older child and Helen when she was born. The mother was several times released from the hospital and had three other children. Two of them died, leaving Helen, her older sister, and a sister six years younger. The mother was committed to the state hospital for the last time in 1933 and is still there, diagnosed as schizophrenic. Helen had become a problem when six or seven years of age, when the mother was in the home. She ran away from home and gave the impression of being a lonely, pathetic child. She was antagonistic to everyone except her mother who was inadequate to handle her. Finally she was placed in a child-placing agency in 1933. She had been in three boarding homes. In the first she was jealous, showed much temper, would not study her lessons, avoided children her own age, and played with little children. One day she became hysterical, tied a jumping rope around her neck to choke herself, and tried to swallow a box of pen points. Several weeks later she was sent home from school after a temper tantrum and attempted to kill herself by running out of the house before an auto. She adjusted awhile in a new boarding home, associated only with a small, half-witted child next door, but later became stubborn and defiant. One day she was sent home from school after a period of wild talk, and threatening suicide. She frightened teachers and children. The Principal felt that it was a play for attention. She quieted down for a period but again became hysterical, cut her arms and legs with a rusty knife, and rubbed the cuts with ink. She ran away and returned to the home of the former boarding mother. In a third home she did well for awhile and was deeply attached to her teacher, saying she wished she were a doll. Finally she again got hysterical, ran away, and tried to jump in the river.

On the children's ward she said:

> I ran away from my boarding mother. I was lonesome. I wanted to see my father. I am a poor student. I am worried about my mother; she is in a state hospital. She has been there

> since July, 1933. I used to live with my father and grandmother and two sisters, but I ran away from there first. My mother did not want to go away. My big sister was mean to her—chased her about with knives. I ran away the first time when I was about nine. My mother had been in the hospital and had just come home. I don't know why I did it. I want to live with my family. I made a sampler "God bless our home." I love to take care of babies. And I would like to write stories. And I like to play with dolls. Girls menstruate so they won't go crazy. I skipped two periods.

She was an asthenic, poorly nourished, physically unattractive girl with a poor posture and acne of the skin. Her IQ was 83. She was emotionally unstable on the wards, especially at bedtime and bathtime. She did silly things that made the children tease her, hit her, or revile her, and then she screamed and brooded until the nurses reprimanded or isolated her. Then she seemed happy after she had been punished. In an interview she said that she felt unhappy because she worried about her mother and no one came to visit her as the other children's relatives did. It was noted that instability was more marked just before menstrual periods. Then she became withdrawn, brooding, depressed, unable to concentrate, crying without cause, hiding in corners, hysterical, and saying she wanted to die. She had to be carefully watched because on several occasions she made suicidal gestures. She improved with intensive treatment, and became very cheerful, eager to work and generally enthusiastic, although she was extremely sensitive and became boisterous when one of the other children passed any remarks about her. She was discharged to a new boarding home. A year later, after another similar episode, she was emotionally unstable, made suicidal threats, and ran away to her father who was utterly unable to care for her. She improved again with ward treatment and was sent to an institution for normal children.

In a month, however, she was returned to our wards with the story that she did not make any friends at the institution, was unhappy there, depressed, and finally in one of her usual periods of emotional distress attempted suicide by cutting her wrist. She again claimed that she wanted to return to her own home, which as a matter of fact had been completely broken up. She was sent to a state hospital. The older girl had been involved in delinquencies and taken into custodial care.

Case 17. Ella was an 11-year-old girl who was sent to us through the Children's Court on a charge of delinquency because she persistently ran away from home. She was always found somewhere in New Jersey. She apparently always took the same route over the George Washington Bridge. When placed in a Catholic school she ran away from that institution also and was again found in New Jersey. She was a bright girl with an IQ of 127. She did well in school and was considered no problem there. She had a younger brother and sister; the brother was subsequently before the Children's Court for running away and delinquency.

The mother of these children had been in Bellevue in 1924 when Helen was less than three years old and the youngest sister was six months old. The mother had been suspicious of her husband since marriage, accused him of infidelity, and kept to herself. For a couple of weeks before admission, she became disturbed, incoherent in her speech, saying that the animals of the zoo were after her; she threw herself on her children, ran out of the house undressed, and tried to kill herself. She was committed to a state hospital where she remained a year. She was discharged to the custody of her parents with whom she lived for a period while her husband and small children were in Texas with his people. Later, the family was united. Her behavior had never again been entirely normal, however, and it was the opinion of several physicians in two clinics and the Children's Court who saw her officially in connection with the children's problems that she was still mentally sick although mildly so. She neglected the home, the children had no training, and she made every effort to obstruct the efforts of the Children's Court to help with her children.

At first Ella pretended not to know that her mother had ever been mentally sick. She claimed that as a small child her father had kidnapped all the children and had taken them to Texas against the mother's will while the mother remained at home in New York until she could borrow money and get to Texas and get her children from the father again. It is probable that these were ideas which the mother had encouraged. The mother said that Ella was like her father inasmuch as he had run away to the Navy as a boy and had run away to Texas with the children when they were small. Two years ago his mother had died and all of the family had gone to Texas in a Ford and had gone by the George Washington Bridge route, passing through New Jersey. Gradually it was possible to get Ella to be less diffident, repressed, anxious, and blocked. She admitted that she knew her mother had been mentally sick and that she was at the present time not like other girls' mothers; that she neglected the housework, did not take good care of the children, and was very cross and irritable with them. Ella, as she approached adolescence, was very sensitive about these things. Ella, besides being a runaway, was a bed-wetter, was very negligent of her personal appearance, careless in posture, childish in her behavior, besides being an inhibited, blocked, unhappy, harassed child. She admitted that she was running away with the hopes of getting to Texas where she felt she could be much happier than in her own home. She also had an interesting dream in which she dreamt that she was out walking with her sister and brother and a bear jumped out from behind a tree and her brother and sister ran back to the house but she ran the other way. It was possible to give Ella some understanding of her difficulties, to stop the bed-wetting, get her to take more interest in her personal appearance, develop better personal habits, and take more interest in her school work and other activities, and she agreed to go to a good Catholic school, where she made a good adjustment.

Psychopathic Behavior Problems Associated with Deprivation of a Home and Mother Early in Childhood

Deep-seated psychopathic reactions are often seen in children who are deprived of their own home and mother in the first few years of life. We see these reactions in children of psychotic parents as well as in children who have lost their homes and parents for other reasons. There can always be a question as to whether these so-called psychopathic personalities are not constitutional patterns, but, since they occur most often in children who have been deprived of the normal family life in the first five or six years of life, it is most probable that they are in part, at least, a deprivation reaction. Constitutional factors may play a part, inasmuch as it appears that all children who are so deprived at these years do not necessarily develop this type of behavior. The behavior is characterized by hyperkinesis in the younger children, with all sorts of asocial behavior, a tendency to a free play of their impulses and no ability to acquire any restraints. They do not make deep emotional attachments to anyone and, therefore, do not show much anxiety as a rule. They respond very poorly to any type of training, once the pattern is established.

Case 18. Clifford* was born to his mother when she was on parole from a state hospital. She was returned to the hospital when Clifford was four months old, and died there. She had four older children who remained with the father, who subsequently married again. It is to be assumed that the four other children have made a satisfactory adjustment. Clifford was cared for by his mother till he was four months old, and then was placed in two different nurseries with several periods in hospitals for infantile illnesses until he was four years old. Inasmuch as the father had remarried, an effort was made to get him to take the child, which he was unwilling to do since he said that he was sure it would be insane because the mother was insane when the child was born. It was reported at this time that Clifford was a difficult child, always demanding first attention from attendants, unable to play with children, that he had not acquired toilet habits, and demanded that he be fed or he would not eat. He was always anxious for affection, but otherwise was negativistic and would cry to exhaustion if crossed. At home he did not fit into the group, and only demanded attention and attacked his siblings with knives. He was placed on our wards at the age of 6, was noted to be overactive, to be infantile in speech and in all his habits. He was distractible with a poor attention span and he was unable to get along with other children. A boarding home was recommended, which was attempted. He rapidly developed all sorts of behavior difficulties, sex play of all sorts, stealing indiscriminately, confabulation, cruel aggression to other children and animals, inability to adjust to any school routine. Other children would not play with him but called him "nutty." He received psychotherapy from a psychiatrist for awhile, but did not respond to that and did not develop any transference. His IQ was 85. He was again admitted to our wards. The behavior pattern at that time was very similar to the post-encephalitic behavior, but there were no neurological signs. In an active routine he did not actually adjust but became more or less inconspicuous; his more flagrant asocial behavior could be controlled, and his overactivity motivated to some extent. He was sent to the children's service of a mental hospital.

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*Eight years old.

Case 19. Abe was a 15-year-old boy with an IQ of 91, whose father had been sent to a state hospital first when he was three or four years old. The home had been broken up and the children placed in an orphan home. The other children were all older and their personality patterns more or less established. Abe since that time had been in many institutions and boarding homes but had never adjusted anywhere. He was always at odds with everyone with whom he came in contact. He complained that no one cared for him, and he was always resentful. He complained that the food was not right, that he had no friends, that other children did not like him, that everyone picked on him. On several occasions he was returned to his own home with his mother or with sisters, but did no better with them. He was sent to Bellevue when he ran away from one of the schools in which he had been placed. He was diagnosed as a schizoid psychopath because of his antagonistic, negativistic, resentful attitude and his inability to adjust. He blamed the whole world for not treating him right.

Case 20. Herbert was a 12-year-old colored boy with an IQ of 82. He was an illegitimate child. His mother had boarded him out when he was two years old, and when he was four she developed an acute excitement with hallucinations and religious delusions. She was committed to a state hospital. He was subsequently committed to a child-placing agency and placed in several boarding homes, but did not adjust to any. He started homosexual practices wherever he was placed, would steal from the neighboring stores, did not obey his boarding mother, and would come home whenever it suited him. He showed no affection for his boarding mothers. He did not like to sleep alone and when placed in a room alone would scream for hours, claiming ghosts were after him. He also did poor work in school. His memories of his mother were obviously confused. He said of her:

> Sure my mother brought me up. I liked her best because she brought me up. She can't take care of me now because of her four other children. They are all older. They are 18 or 19. They are grown-up and gone. The lady said my mother is in a hospital. I lived with three ladies. The first one, I was

> bad—I was just bad. The second one was bad to me. She wouldn't let me do anything and she fussed. The last lady, I was bad but she wouldn't let me do what I wanted. I would like my mother best; she would let me do what I want. I dream that my mother comes and takes me. She takes me out, around Brooklyn and to the movies and then I go home with her.

This child was always very aggressive, saw no reason for adapting himself; and only demanded his mother.

Case 21. Benjamin, 11 years old, was one of two colored brothers, his brother James being two years younger. Their father died in a mental hospital in Virginia. The mother brought the two children to New York and placed them in a home when James was one year old and Benjamin was three. They remained there six years. Then the mother attempted to take the two children. They had been a difficult problem ever since, expecially Benjamin. He was accused of disobedience, defiance, running away from home, cursing, poor school work, truancy. He was taken before the Children's Court for delinquency because he was incorrigible, and sent to the Children's Ward of Bellevue for observation. His IQ was 81. He admitted all his bad behavior and tended to boast of all sorts of asocial behavior which was not recorded in his history, including a wide range of sex experiences. On the wards he made himself unpopular with chidren and adults alike. He was aggressive, destructive, took property from other children, initiated sex play, was persistently unkind in all his relations with others, but tried to blame others for his faults.

This group of children have in common two factors: (1) A broken home and loss of the mother (even when the psychotic parent was a father) in the early ages, being thus deprived of normal home environment, and the chance to form the usual attachments to mother and father, with the result that the Oedipus situations and the development of the super-ego were disturbed. (2) A behavior characterized by an aimless reaction to all impulses, all sorts of asocial behavior, an inability to make attachments, distractible attention, and poor response to new environments.

NEUROTIC BEHAVIOR PROBLEMS RESULTING FROM THE LOSS OF A MOTHER OR IN REACTION TO A PSYCHOTIC MOTHER

Case 22. Kelly was a 13-year-old colored boy who was the 9th of 10 children. The father died when Kelly was five years old and the mother traveled up from Virginia with her 10 children as a religious missionary. Her religious zeal finally developed into an active psychosis and she was confined in a state hospital in 1924. The diagnosis was paranoid dementia praecox and the history claimed that she had been psychotic for seven years before commitment. Kelly and his younger brother James had already been taken over by the colored orphan home two years before her commitment. James was reported to be nervous, dull, and a stammerer. Kelly was placed in a broading home, was not liked by his boarding mothers, and had difficulty in making any adjustment. It was complained that he was dull, sullen, lazy, would wet his clothes and the bed, day or night, out of sheer indifference. He was observed to masturbate, was rude, quarrelsome, and sometimes stole. His school work was uneven, at times good and at other times indifferent.

He was referred for a period of observation to our wards. His behavior was somewhat variable but gradually improved during the time he was with us. He got so that he seemed to enjoy the activities. But at first he was lazy and dull. In an interview he started talking in a dull monotonous way, but he often suddenly became inspired and would show a world of fantasy. He wet the bed occasionally in the beginning of the observation period, but later stopped it entirely. He impressed one as a lonely adolescent who had not been adequately motivated and felt alone in a friendless world. In the last week he became more energetic. He produced some remarkable art work which brought him a good deal of attention. He admitted his bad behavior and seemed to understand it, but did not have sufficient motivation at first to avoid it. He understood that his mother was in a hospital but did not know the details. He had fantasies of building a house for her in which the two of them would live alone. One had the feeling that this was a lonely adolescent who needed his mother to help him through the critical period of adolescence and to give him the motivation to grow up.

Case 23. Veronica was a nine-year-old girl who was brought to our Mental Hygiene Clinic because she was not progressing in her school work as would be expected. Her mother had been committed to a state hospital when she was one year old. Her mother's mother had also been in a state hospital the last 22 years of her life. Veronica also had a sister who was four years older than she. At the time that her mother was committed, relatives took the older child but Veronica was placed in a nursery. The mother was subsequently paroled from the hospital but did not return to her husband and older child. She lived an erratic life for a few years and when last seen was reported to have had a recurrence of her mental illness. She was not returned to a hospital, and disappeared. Veronica was cared for by a nursery for a couple of years and then placed in a boarding home where she was well liked until she entered school. She failed to progress, became apathetic, felt inferior, began complaining that she could not see, since she could not see the words on the blackboard that the other children saw, and developed other hypochondriacal complaints. Her boarding mother, who up to this time was interested in her and had planned to adopt her, lost interest, thinking she was defective. On our wards it became evident that the child was not defective, having an IQ of 87, that she did not have a defect of vision, but that she was a case of reading disability or congenital word-blindness. After a period of remedial training and reassurance, her behavior improved, she began to advance in her school work, and gave up her hypochondriacal tendencies. Meanwhile she had lost her foster home, and it was necessary to place her in a new boarding home where she was unhappy and again became hypochondriacal and discouraged over her school work. It appears that this child suffered because she had a reading disability which made her feel inferior, and because she did not have her own mother to stand by her during a period of stress.

Case 24. Harold was an eight-year-old Italian boy, a middle child in a family of nine. He had an IQ of 100. He was sent to our children's observation ward from the Children's Court because of delinquency, including running away from home and petty thefts. The judge was especially concerned because of the history that four older brothers had all been before the court in turn and had all been sent to correctional institutions, and it appeared that the younger boys were going to follow the same career. Two girls in the family presented no problems.

The mother had been mentally sick since 1924 and was first sent to a hospital when Harold was a year old. The father gave the following history of the family:

> When I first got married, 1914, my wife she was good to me and I was good to her. She had a baby first year and then every 16 months or two years. She was OK for 11 years after we was married. Then she got sick. Then she liked only the little babies and not the big ones. We had no trouble until she began to get sick. Then she drove the bigger children out of the house. Then we put her in the hospital. We had to put the two oldest boys away because they were bad. Catherine went with her aunt. The three little ones including Harold were in homes. He was only one year old. They were in homes two years. When his mother came out he was three years old. She was pretty good for one year. Then she got very bad again. She did the work but she was very cross. We never had no happiness at all. All the time trouble. She let the babies lie sometimes, but she always liked the smallest babies. She had two more. The four older boys all got bad. They listened to no one. They won't go to school. I don't know what is the matter. Catherine is good and Theresa is like her. Harold is getting bad like the older boys. Sometimes he plays hookey and don't come in at night and steals. At home is Catherine, Theresa, and Harold. The older boys are in institutions because they were bad and the little ones are in a home.

Harold says:

> I run away from home because I stayed away late at night. I was in a show and it was late and it was dark. I was sleeping in somebody's hallway. I was afraid to go home. My father would hit me for being late. I was left back in school twice because I stayed away and played in the park. The teacher hit me. At home is my sister Catherine. She cooks and cleans the house. My mother is sick in a hospital. When she was home she used to holler too much. She was sick in her mind. She was like that a long time. Before, she was nice and all right but I don't remember when that was. I want her home because I like her but I want her in the hospital when she is sick because at home she can get more sicker. My sister hits

> me too much because I am bad. My big brothers are all away because they were bad. The little ones are in the homes because my mother is in the hospital and can't take care of them. I dream that my mother is going to die. I dream it three times. She is dying in the hospital.

He was shy, tense, restless, but he had a good understanding of the home situation. He expressed a longing for a well mother. He showed a marked sense of guilt and a fear for being bad. He knew that his older brothers were sent away because they were bad. He was afraid of his father and sister when he was bad. This child never knew his mother when she was well. Nevertheless, he realized that she was mentally sick and he longed for the time when she would be well again. He seemed to have a better understanding than his father of the difficulties that led to his delinquency, and he showed considerable anxiety and guilt. He had suffered a great deal from the insecurity of the home life. When he was not cared for by a mentally sick mother in a harassed household, he was cared for a couple of years in his early life by a boarding mother and now by a very young sister. He faced the prospect of being placed in a correctional institution, as his older brothers had, or in an orphan home with his younger brothers. He realized the difficulties his sister had in keeping the home up properly and was fearful of losing the little homelife that he had.

SUMMARY AND DISCUSSION

Twenty-four children whose mother or father was a known case of schizophrenia, and had been treated in a hospital for this condition, are reported. There was no selection of the children; they have included all types of problems that are referred to a psychiatric service for observation. The age range was 3 to 15 years, but two-thirds of the children were over 10 years of age, showing that the critical period for behavior problems in children whose parent is schizophrenic is in early puberty. This did not represent that age of the child at which the parent was confined to a hospital, or at which the parent began to develop mental symptoms; in only five cases was the parent confined to a hospital when the child was over the age of 10, and in only three cases did the mental illness of the parent begin when the child was over the age of 10. Interestingly enough, Blau (4) has also pointed out that children who show personality change after skull fractures do not appear on our wards for observation until early puberty, although the skull fractures occur several years earlier. The range in IQ was from 61 to 120, but in the greatest number of cases was between 80 and 85. This is a somewhat narrower range than is typical for the children on our service.

One-third of the children were girls and two-thirds boys, which is the usual proportion of girls to boys under observation. However, one-third of the parents were fathers and two-thirds mothers. Of the mothers, about half had daughters who were behavior problems and half had sons; thus when a mother becomes psychotic there is an equal chance that sons or daughters may become behavior problems. There is twice as good a chance that when a mother becomes psychotic one of her children will become a problem, as when a father becomes mentally sick. There is only one instance of a father-daughter relationship, and that may be ruled out inasmuch as this was the three-year-old child with meningocele, internal hydrocephalus, epilepsy, and mental defectiveness; furthermore, this child's mother was a psychopathic individual with court records for prostitution, and it was the neglect on the part of the mother which brought this child before the court. The four cases of father-son relationship represent a special group of identification of the son with the father when the father developed the psychosis at the period in the child's life when he was dealing with the Oedipus complex. In the three remaining instances of father-son relationship, the children were all colored and had been subjected to a broken home and insecurity in the homelife, and in two cases deprivation of the mother as well, in addition to the mental illness of the father.

In general, therefore, it may be said that a child with a schizophrenic parent may be liable to become a behavior problem in cases of close mother-son or mother-daughter relationship where the child is under the age of 10 when the mother becomes mentally sick or when she is removed to a hospital, and in cases of father-son relationship when the son is in the period of childhood where he is struggling with the Oedipus complex and the problem of identification with the father, or under 6 years of age.

In these 24 families there were 57 other children, making a total of 81 children. Complete data on the siblings of the children we have discussed is not at hand. However, it is known that eight of the siblings were before the Children's Court on charges of delinquency and seven were reported by social agencies to be behavior problems. Thus, in 24 families with one parent schizophrenic, there were 81 children with 39 known cases of behavior problems, or 48 per cent.

The 24 children discussed here are classified as follows:

1. One case of schizophrenia which developed concurrently with mother, where we may assume that heredity was a factor.
2. Two cases which may be considered constitutionally schizoid or potentially psychotic, where heredity seemed to play some part.
3. Three cases with organic disturbances, two of which may be considered constitutional. These children were brought to our attention because of neglect growing out of institutionalization of a parent.
4. Four cases of mental defectiveness or retardation. The mothers of these children were defective as well as psychotic. In addition to their constitutional inferiority the children suffered from contact with an abnormal mother.
5. One case of *folie à deux* which occurred in a child who was cared for by a paranoid grandmother.
6. Four cases of boys with identification with a psychotic father to whom they were closely attached.
7. Two cases of girls who were behavior problems with ambivalent identification with a psychotic mother, but who seemed to suffer more from the loss of an adequate home.
8. Four children who showed psychopathic behavior problems because of deprivation of a home and proper family relationships in the critical years of early childhood.
9. Three miscellaneous cases of children who showed some type of neurotic behavior problems because of the lack of a normal mother.

In summary, then, it would appear that, by a careful analysis of the case histories of children who are brought to us for observation and who have a mother or father who has been treated in a hospital for schizophrenia, the evidence for constitutional defects is not entirely lacking. It seems to play a part in about one-third of the cases, but the type of constitutional inferiority is not specific. The constitutional inferiority may be demonstrated by schizoid personality defects, constitutional inferiority in physique, in motility, and in intellectual, perceptual, or emotional spheres. There is one case that appears to be hereditary schizophrenia. In approximately two-thirds of the cases it seems quite evident that the behavior problem is not due to constitutional disturbances but to disturbances in the normal development of the child's personality in the early years of life, due to the presence of the psychotic parent, the abnormal parent-child relationships and identification process, the broken homes, and the resulting deprivation of normal parent-child relationship and identifications.

3. CHILDREN OF PARENTS WITH AFFECTIVE PSYCHOSES

The parents with affective psychoses are not as homogeneous a group as the parents with schizophrenia. The diagnosis of schizophrenia was not questioned in a single instance, in the final analysis; all of these parents proved to have chronic psychoses without recovery up to the time they were last heard from. However, among the parents with affective psychoses have been included several different diagnoses. Some are fairly clear cases of manic-depressive psychoses, others are unstable psychopathic individuals or mental defectives with episodes of psychoses. The one thing in common with this group is that there have been episodic psychoses in individuals who have recovered and been more or less normal in the intervals. The constitutional factors and, therefore, the hereditary factors are presumably less definite and consistent than would be expected in the schizophrenic group. The disruption of the home might be less serious. This group includes two mentally defective children with associated behavior problems, two neurotic children, and two psychopathic children.

Case 25. Shirley O. was a 12-year-old girl with an IQ of 74. She was brought to us from the Children's Court as a neglected child after the death of her father, because her mother could not handle her. The history of the mother shows that at the age of 23 the man she loved had married someone else. It was suggested that she marry Mr. O., whom she did not love. She could not make up her mind about the matter, but finally said she might not get such a good chance again. She went through the ceremony mechanically, wept all night, and passed into a depression for which she was treated in a state hospital for six months. She was discharged to her father with the intention of annulling the marriage, but within a year had been persuaded to live with her husband. Shirley was her first child. She had another child of five that was normal. Of Shirley the mother said that she had never been right since the day she was born; she was a constant source of trouble to her mother. She could never learn to dress or bathe herself properly or comb her hair, and had to be watched to see that she cared for her personal needs. She was utterly untrained, although her intelligence was not low enough to justify this. The mother was inadequate to cope with the situation, and after the death of the father, who was the only one who could manage Shirley, the child became completely negativistic to everything the mother wanted. When removed from her mother and brought to the hospital, she first showed an acute panic with anxiety, fear, and bewilderment. Gradually she became adjusted to her new environment and showed the ability to be trained as other children of her mental age are able to; she learned to comb her hair, dress and care for herself, and enter into the play activities of the duller children.

This child was, of course, constitutionally inferior, but she also suffered from being raised by an inferior mother who undoubtedly did not want her and was never reconciled to her. It is to be remembered that children with an IQ no higher than Shirley's are often able to make a satisfactory adjustment in their homes and schools.

Case 26. William was a 10-year-old boy with an IQ of 67. He was brought to us from the Children's Court on a charge of neglect following the commitment of his mother to a state hospital 13 months before. The father complained that the boy could no longer be handled and that because of his low intelligence he could not progress in school. Father said:

> My first wife died of tuberculosis in 1920. I had one child by her. I married the second time in 1921 and had just this one child, William, and I am damn glad that was all. I lived with her pretty well for 10 years but was never sure of her; thought she was seeing her former sweetheart but had no proof of it. Two months ago she wrote me a letter and confessed. December, 1934, she went to a state hospital because she attempted suicide three times; two times with iodine and once by trying to jump out of the window. She was in a private sanitarium 20 years ago by first husband, but I didn't know about it. She came from a family of nuts. She might have told me something about herself; I didn't have a very happy life with her. She was a two-timer.

William said:

> I'm here because I used to hit my little brother. He used to curse all the time and say bad words like s. o. b. and b.

> (*Why hit him?*) Because I was afraid he might say something to the cops and get put away. Now he's away. He lives with my aunt some place in New York. My mother and grandmother are in the hospital and they are getting worster every day. My grandmother died and they put her in the casket and buried her in the ground and covered her up with flowers. (*How do people die?*) Eat poison or shoot themselves or hang themselves or take gas or do suicide by turning on the gas. (*Who do you like best?*) Father. I don't like my mother—only my little brother likes my mother and I hate her. She used to hit me and put me to bed early; drive me and my father nuts. She used to say, "I don't want to be put away." But my father had her sent some place. I like it here better than home because my mother will never come home. She's nuts. She drank iodine and tried to stab herself. I remember when my mother tried to kill herself; she locked herself in the bathroom and drank a whole bottle of iodine. My big brother who ain't got no job broke the door down and grabbed her by the neck. I never liked my mother. I always used to tell my father and brother about my mother being crazy and that she used to hit me so much. She used to throw me down the stairs. She is not my real mother; she is my stepmother. Me and my big brother belong to my father; my little brother belongs to her. My real mother is dead. I've only had this stepmother for a couple of birthdays. She used to make me mind my little brother—that is her son—and my father would come home and say: "He don't have to mind your little rat."

He convinced us that it was his stepmother. When we learned that she was his real mother we asked him about it.

> (*How did you happen to tell that your mother was dead?*) Every time I used to dream that my mother was dead and this lady was my stepmother. And my father was married a second time and I thought maybe this wasn't my mother. (*How about the little brother?*) I guess I must have told you a lie. I told you lots of lies. My mother did used to call me a s. o. b., but only when my father wasn't home.

In this case it is particularly interesting to note how this defective boy has rejected his psychotic mother by calling her a bad stepmother and thereby justifying himself in reviling her as much as he liked. He also fantasied a little brother, which was undoubtedly a picture of himself as he was treated in the family, whom he claims he hits in order to keep him from swearing as the mother did, which he thinks will cause him to be "put away," and then he tells us that he has been "put away." One also sees how much he is preoccupied with the question of death by suicide. Schilder and Wechsler (26) in a study on children's ideas about death, on a group of children from our ward, have already pointed out that children's idea of death is death by violence, but for this child it is by self-destruction.

Case 27. Mary St. A. was a six-year-old child with an IQ of 96. She was brought to the hospital by her mother. The child's brother Robert was in the hospital in 1932 with progressive muscular dystrophy, Erb's paralysis, mental defectiveness, and Froehlich's syndrome, of which he died a short time later. The mother at that time gave an extensive family history showing that two of her brothers had this condition and died of it and in her opinion several of her nephews had the same thing. She also gave the history that most of her husband's family were criminals. She herself had been an army nurse and was in one of the Veterans' Hospitals with a nervous breakdown after the birth of Mary. In 1932 when her son was in the hospital she gave the history that Mary had been placed in a boarding home and that she, the mother, had not seen her for two years, but she understood she was a midget.

She said of Mary at the time she brought her to the wards:

> She was placed in this home when she was two or three weeks old. I took her home in 1932. She was terrible; she would get up in the night and slap the roomers in the face, she would wet and soil, she would hit the other children. She was completely turned against me. She accused me of taking her from her home. She said I wasn't her mother. She went around without her clothes on and spent her time in the toilet. I took her to an orphans' home for awhile and she was fine there. They called her a child with a dual personality. I took her home again and she was as bad as ever.

The first day on the ward, the child was over-active and would not answer questions or allow herself to be examined. She soon adapted well to routine and was very happy and well behaved. She said:

> I have two mothers. I like Mrs. L. best. I don't know where Mrs. St. A. came from. I don't want her. I don't like the father she got for me, either; I like the father Mrs. L. has. I want to go back to her.

This child, by the way, was somewhat small but by no means a midget.

Arrangements were made to send the child back to her foster mother, which pleased everyone. Although this child's family history was full of mental and nervous diseases, the child herself had the good fortune to be raised by a devoted foster mother to whom she was closely attached, and she reacted with a severe behavior problem when she was removed from this foster mother and taken to her own mother of whom she says: "I don't know where she came from and I don't want her and I don't like that father she got for me either."

Case 28. John was a 13-year-old boy with an IQ of 89, who was sent to us from the Children's Court on petition by his mother who complained that he ran away from home and that she had been told he was mentally retarded. Two married sisters live away from home (half-sisters by the mother's first marriage). Shortly after the boy was taken to court, the father assaulted the mother, broke her collar-bone, and she was sent to a hospital, he to jail.

The mother stated that the father was forever beating the child and that he kept him in solitary confinement for two weeks at a time with nothing to occupy himself with, since in her opinion he was feebleminded and could not read. (He could read at fourth-grade level.) The mother said that the father was criminally insane as a result of shell-shock in the war. He was trying to cut her throat with a carving-knife when he broke her shoulder blade, but neighbors rescued her in time. Father subsequently was sent to Bellevue by the courts, gave a history of alcoholism, accused his wife of the same, and made similar accusations against her that she made against him. He was diagnosed as a psychopathic personality and returned to court. The Red Cross who was interested because the father was a veteran, reports:

> Married Jan. 21, John born 1922. Father deserted and was not seen for 10 years. After returning he mentioned some hospital, and it was believed that he had been in mental hospitals

> but this could not be checked. He was in one veteran's hospital and a diagnosis of severe neurasthenia was made, he left against advice and would not follow up recommendation or take necessary steps for compensation. Mother has been told that John's lack of emotional control was hereditary.

The child showed marked inferiority feelings; he claimed that he was dumb; insisted that he could not read, but read a fourth-grade reader adequately. He claimed that he got in trouble in school because he was a fighter but said that he was a poor fighter. He was evasive about the family situation. The mother said:

> I've known for years that father was not normal. I knew him two years before I married him and he was all right then. It was after we were married that he began to go to pieces. The day John was born he disappeared; after that he couldn't keep jobs, was erratic, and acted queer. About a year after, when I was sick in the hospital in Detroit, they had him put in a hospital but he left there without leave but was picked up again. He gave me the impression he had spent most of his time in a hospital, but no data could be found. Since he came back he has not worked. He has ruined my home. He has driven out my two daughters by my first husband; he nagged and nagged. He accused the girls and me of going with men. Three days before John ran away he told him that he was not his real father but an old disreputable Pollock in town was his father. He threatened to beat John to death if I left the house, so I never left, but the child was in constant terror. The father insisted on helping him with his school work and made him nervous. He told him he was dumb.

The mother was also very erratic and irresponsible. She insisted that the child should not be in a boarding home or in a Catholic institution. She was antagonistic to every public agency with which she had dealings, reviling the Red Cross to us and our hospital to the Red Cross.

John said later:

> I wish they would keep my father in jail. They should examine his brain. He told me he was not my father. Do you think it could be true? I wish it was. I hate that guy. I would rather take a chance on anybody for my father than him—even that man he mentioned, though I never saw him.

The child did not adapt well to work, was constantly preoccupied and always stirred up over news of his mother's injury, her visits, and reports of the court procedures. The boy could not attend to his school work. Further, he showed depressed neurotic symptoms, washing his hand continually. He was apparently afraid of dirt, although these things he hid as much as possible and would deny them when questioned. It is clear that this child's capacity to make a happy, wholesome adjustment to life and to his school work has been pretty well wrecked by his erratic father, the broken home, and open threats of aggression against him. He was placed in an institution for normal boys by the courts.

Case 29. Ruth was a nine-year-old child with an IQ of 84, who was sent to us by a child-placing agency because of her persistent sex-activities. The father was said to be epileptic and could not get regular work. The mother was born in Assyria but had lived in the United States for 35 years. She was first committed to a psychopathic hospital in another state for six months in 1915, with a manic-depressive psychosis, and again for six months in 1916. After that she married and had two children, Ruth and Calvin. She did not marry for love but for security. Her husband was a drinker, with no sense of responsibility for home or children. The mother would appeal for aid to all of the social agencies, accept it and disappear. The children were long known to be very bad problems and absolutely untrained. They were committed to a child-placing agency after complaint of neglect through the Children's Society in 1934. The petition stated that the father was a chronic deserter. The mother came to Bellevue and was committed to a state hospital where she still remains. She stated that everyone has always picked on her and she believed that it was a cross she had to bear, as everyone has his own cross. She was given the diagnosis of psychosis with phychopathic personality. The brother Calvin was a borderline defective and was first placed in the same boarding home with Ruth, but they did not do well together, both being undisciplined. After separation, Calvin has done well and does not miss Ruth, saying he prefers to be away from her since she bothers him. He was placed in the ungraded classes in the public schools.

Ruth presented a severe problem from the beginning. She always wanted to be the center of attention. She was versed in all sex play, and was very curious about sex, and was unrestrained. She got delight in the consternation she caused in others. She was also known to wet, soil, steal, and lie. She has been rejected in three boarding homes and promoted in school as fast as possible to get rid of her.

She said:

> My mother is in a state hospital. She went there after I went to the Children's Society. She was all right. They let the quiet ones go up and the noisy ones go down. She was down. They let her run a little bit too. She is all right now.

This child has the features which characterize the psychopathic child. She has been subjected to every form of insecurity throughout her short life.

Case 30. Fannie* [see Bender and Schilder (3)] was the seventh child to her mother when the mother was 29 years old. Three others were born subsequently. The father was an inadequate person and a habitual drinker. The mother was of inferior intelligence. The family had been cared for by numerous social-service agencies. The mother became mentally sick when Fannie was three months old. She was excitable, irritable, suspicious, and suicidal. She was committed to a state hospital when Fannie was five months old. The diagnosis was psychosis with mental defectiveness. She remained in the hospital some months during which time all of the children were boarded out. When she returned home most of the children returned to the home except Fannie who was placed in the Home for Hebrew Infants until she was five years old. She had numerous infantile illnesses. She was said to have no power of attention, she teased other children, was not obedient, cried easily, but was talkative, affectionate, and responsive. She was in five foster homes between her fifth and eighth years. Complaints against her were that she carried on sex play with other children in the foster home; she pinched herself, used bad language, stole, was voracious with food, and had tantrums. In 1933, it is reported that she enjoyed being tough, would shock people with her language. She was in the hospital twice for treatment of vaginitis. In 1934 she was in a home for Jewish girls. There she would steal out of the house, and claimed she had relations with five different men. She was only 10 years old at that time. She fought with other girls, used baby talk, had temper tantrums, stole, and used vile language. She was somewhat retarded at school, being unable to concentrate and lacking in motivation. On the Bellevue Psychopathic Ward in 1934 she demonstrated a mature sophisticated air about sex problems. She claimed she had never lived at home and was never happy in a boarding home. She was sent to a disciplinary institution where she was unable to adapt to routine, was inattentive, broke out of windows, had temper tantrums, etc. She was returned to Bellevue in 1935. She seemed to be lacking in any social sense. She would not wear her clothes, had no feminine pleasure in appearance, was defiant, untruthful, unable to get any consistent satisfaction from any activity, etc.

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*Twelve years old.

The behavior and personality development of this child closely resembled a post-encephalitic condition. However, she showed no neurological signs. The early history is typical of that which is associated with the psychopathic child, which results from the deprivation of normal family relationships in the first years of life. She was sent to the children's division of a state hospital. It is important that Fannie was the only child in a family of 10 that showed a severe behavior reaction. She was the youngest, however, and was not returned to her mother when the mother returned from the state hospital, but drifted from one institution, hospital, and boarding home to another without any opportunity to receive any consistent maternal care or make any deep personal attachment.

Discussion

It will be noted that there are relatively fewer children of parents with affective psychoses who are brought to the hospital for observation for behavior problems than children of parents with Schizophrenia. Of course, there are more cases of schizophrenic individuals than of those who tend to have affective psychoses, but on the other hand it has been shown that the schizophrenic individual is unlikely to marry and have children. In this group every parent who had a transitory psychosis is quoted, although the majority were not manic-depressive psychoses but for the most part reactive psychoses in unstable or inadequate persons, and some were defective persons. Among such individuals it is not surprising to find defective children who have been inadequately cared for by their defective, unstable parents. Such were Cases 25 and 26. Case 27 showed us a little girl full of hereditary taints, who was boarded out almost immediately after her birth, when the mother went to a state hospital, and later was so completely rejected by that mother that she did not bother to visit the child but dismissed her from her mind by saying she was a midget, which was not true. Later, when she attempted to take her home with her, the child as completely rejected her. However, she was a normal child in any other environment and especially in the boarding home where she had been raised and been loved, and to which the mother readily consented to let her be returned as long as some agency would pay for her board.

Case 28 shows us a potentially normal boy struggling with the task of living with and accepting a particularly unstable antagonistic, and aggressive psychopathic father. Nor was he adequately protected by his mother, who was also psychopathic. We are not surprised that he developed compulsive neurotic symptoms, fears, strong feelings of inadequacy (due also his reading disability and consequent school retardation), hatred of his father, feelings of guilt, and hopelessness. Cases 29 and 30, Ruth and Fannie, were girls who were made psychopathic by the insecurity and instability of their early life, due to inadequate parents who were subject to episodes of psychosis.

Nothing specific can be said of this group, except that there is no conclusive evidence for any hereditary factors or constitutional weaknesses, except where mental defectiveness plays a part. The personality difficulties of the child appear to be the result of the turmoil in the family life. If the difficulties in the family life occur early in the life of the child and persist throughout the early years without any opportunity for the child to develop any deep normal attachments to any parent or parent substitute, we may expect serious psychopathic personalities; if they occur later, after the child has had the opportunity to develop some normal human relationship to at least one parent, neurotic disturbances tend to develop.

4. THE CHILD OF A DEFECTIVE MOTHER

One case of the child of a defective mother who suffered because of the mother's defect, and not his own constitutional make-up, will be reported.

Case 31. Charles was a two-and-a-half-year-old boy who was sent to us from the Children's Court on a charge of neglect as a probably defective child for commitment to a suitable institution. His mother had been in Bellevue three years before, at the age of 14, being illegitimately pregnant by an unknown man. She was found to be mentally defective with an IQ of 48. She was committed to a state school for mental defectives where she gave birth to Charles who was taken by her mother, or his grandmother, into a home of poverty and mental defectiveness until he was brought to the attention of the Children's Society and a charge of neglect made. When he was first admitted to the hospital he was in a very neglected condition. He had impetigo all about the scalp and ears and mouth and nose. His scalp was discolored by a heavy pigment formation. He was malnourished, pale, scrawny. He could not or did not speak and was incontinent of urine and feces which, however, always threw him into a fit of terrorized screaming, indicating that he did not know how to make his wants known, but that he had been accustomed to severe beating when he soiled. He was fearful and completely unhappy. After a few weeks of care there was a complete change in the child. His physical condition became normal rapidly with proper care. He was soon responsive and responded to training in toilet habits, eating, dressing, etc. He was quick to enter into the activities of the other children. He enjoyed affection and attention. He soon began to talk and a psychometric test scored an IQ of 96 for him. This was a case of retardation due to environmental deprivation. He was referred to a home-placing agency for placement in a normal boarding home.

5. THE CHILD OF AN EPILEPTIC MOTHER

A child will be discussed who had some evidences of constitutional inferiority, but whose severe behavior difficulties were undoubtedly colored by the violent aggression of an epileptic mother.

Case 32. Morris was an 11-year-old boy with an IQ of 90, who was sent to us from an orphan home because of so-called epilepsy and chorea of the feet. The family history showed that the father had had chorea every year as a boy, for two months, until he was 13 years old, but had recovered entirely. The mother had a brother who was also said to have had chorea as a child. The mother herself developed epilepsy at the age of 28 when Morris was nine years old, and was committed to Craig Colony through Bellevue. She had an IQ of 62. Morris was said to have had convulsions during the first year of his life. He was slow in learning to walk and was considered retarded in school. At the time the mother was committed to the epileptic colony Morris was committed to the orphan home. He was a great problem there. It was stated that he had a peculiar incoordination of the feet and was sometimes subjected to spells of restless movements in the feet which lasted three hours and which he could not control. These so-called spells were thought to be epilepsy. He could not attend school because of them and was a very restless, silly-acting child who was considered to be a behavior problem in connection with mental defectiveness. On our examination we found that he did have some choreaform incoordination of the body which was probably a constitutional defect. It was most marked in the feet. Epileptic phenomena were never observed. His IQ showed that he was not defective. He was a very self-conscious child with marked feelings of inferiority. His silly behavior was clearly a clowning to cover his feelings of inferiority, especially in regard to his poor motor control. He was given physiotherapy, with proper orthopedic supports for his feet, and a good deal of psychotherapy which gradually revealed his special feelings of inferiority in regard to his feet. When playing toy soldiers he always arranged for all the soldiers to ride in carts. He would say, "The captain doesn't want them to walk. The cars go faster and he is afraid they will get killed." His pictures always showed one-legged men. Finally, he confided to his physician that his mother in her epileptic rages would threaten his life and had also threatened to cut his feet off. He said:

> She is at the hospital. She has epilepsy. She gets headaches. She goes crazy. She takes a knife and almost kills somebody. She cuts her own hand when she gets a headache sometimes. She didn't see me because I used to hide away. I was scared. She was looking for me to try to kill me but she couldn't find me so she cut her own hand. Because she went crazy. She didn't know. I told my father when he came home so he took her to the hospital. My mother wanted to hurt my feet because she didn't want to see my fits any more. She wanted to cut my feet off with a knife. Then she was going to put them back on and make believe she didn't cut them off. She told me that if she goes crazy she is liable to cut my feet off. I get fits in them. I am nervous in them.

His response to treatment was entirely satisfactory so that he later allowed his toy soldiers to march in battle, and drew pictures of men climbing houses and walking by tight-rope from one house to the other. He regained confidence in himself and could hold his own in the activities of other children. He has since made a satisfactory adjustment to a boarding home.

That he had some motor difficulties in his feet there could be no question, and that his mother believed they were epileptic as her convulsions were is also probable, so that in her epileptic furors she vented all her irritability on the boy's feet. This both terrorized him and made him feel every inferior and magnified the motor difficulty, which as a matter of fact was not so great but that with proper orthopedic treatment and psychic assurance he was able to control it. The fearful aggressive outbreaks of the epileptic psychosis in the mother showed their marks in this boy.

6. CHILDREN OF PARENTS WITH SYPHILITIC PSYCHOSES

Although considerable evidence has been brought forth to show that schizophrenia is or may be a constitutional disease and that hereditary factors may play a part in behavior problems in children who have schizophrenic parents, it is pretty generally conceded that general paresis or psychosis due to syphilis is probably entirely exogenous unless we allow for a certain type of constitutional type that will expose themselves to syphilis or are vunerable to the central nervous system type of syphilitic process, which is sometimes argued. Bowman and Raymond (8), however, felt justified in using general paresis as a control group in their statistical studies of schizophrenia and the manic-depressive group. Whereas they found similar personality characteristics in the two groups of so-called constitutional psychosis, they found different factors in the personalities of persons who developed general paresis, leading to the impression that the latter group in general represented a fairly average type of personality. It will, therefore, be of considerable interest for us to consider the behavior problems in children who have a parent suffering from syphilitic psychosis. During the period in which 24 children with schizophrenic parents were observed, 7 children with a parent suffering from a syphilitic psychosis were observed. Three of these children had congenital syphilis, one involving the central nervous system.

Cases 33 and 34. Russell and Edith were brother and sister, but they were observed at a year's interval. The father was brought to Bellevue in October, 1932, after a convulsion on the street. According to his wife he had shown no previous signs of the disease. He was committed at once to a state hospital. He had been a fairly successful chef and dominated the family, the mother being a weak, inadequate woman. The father not only had supported the family well, but did most of the cooking and supervised the housework at home and disciplined the children. Consequently, the family was doubly deserted by his commitment. Neither the mother nor any of the children had syphilis. At the time he went to the hospital there were three children: Russell, eight, Edith, seven, and a sister two years younger. The mother began to lose control of the children as soon as the father went to the hospital, but the real difficulties arose when he came home on parole in 1934. He tried to dominate the family as before but was no longer successful and threw everything in chaos; he could not work and earn a living as before; he only created confusion and trouble in his own kitchen, and irritated and threatened the children without disciplining them. Edith at that time was the chief source of trouble and when he threatened to place her in a school she ran away from home twice, for days at a time. This excited the father and he looked for her and annoyed the police until he had made himself conspicuous, so that by the time Edith was found he was returned to the state hospital. Meanwhile he had impregnated his wife and she shortly had another baby. During his second period in the hospital, the two girls were sent to relatives in Oklahoma who wanted to adopt them. They would also have taken Russel, but he insisted on remaining with his mother. In March, 1935, he was before the Children's Court for delinquency. His statement of the problem was as follows:

> I was bad. I did something dirty. I am afraid to tell you. My mother told me not to tell anybody. Sometimes I stole an apple or something like that. Once I ran away from home. I was afraid to come home. I was good when my father was home. He had to go to the hospital about two years ago. It is a state hospital. I don't know what is the matter with him. He was nice to me. I liked him better than my mother. I had a needle examination afterwards. My father was nervous. Like when my mother wanted to do anything and then he started to yell. Like cooking. He would say, "Stop that; that is my job." But he was a chef anyway. Then he came back and went back. My sister ran away from home. She didn't want to go to a Catholic school. He got nervous, I think. He went out and stayed out all the time looking for her. They found her sleeping in a carriage and took her to the Children's Court. My sisters went to Oklahoma last summer. They wanted them to come. I miss my father but things are worse for us when he is home. He is always wanting to do the cooking when he ought to look for a job. I don't like school and I don't go when he is not home. I meant it was worse for us when he was not home. My mother wants to see him sometimes and she cries. She stays home and cries and don't do nothing. She has to look after the baby. I don't want to go to Oklahoma unless my mother does.

His blood and spinal fluid Wassermann were negative. He was returned to his home and it has been reported since that he has done well. Meanwhile, Edith was not contented in Oklahoma. She wanted to be with her own mother. She blamed herself for causing her father's return to the hospital; she did not understand what was wrong with her father, and she was not much taken with her aunts. She accused them of favoring her younger sister. She was antagonistic to the idea of being adopted by her aunts. At about this time the father escaped from the state hospital and arrived in Oklahoma where the relatives helped him cover his escape, but at the same time would not allow Edith to see him, telling her that he was "crazy," which she did not believe. Meanwhile, they told her that her mother had died, so that she should be content to stay in Oklahoma and allow herself to be adopted, but she secretly saw her father and he told her to the contrary. Then all of her resentment against her relatives broke out and she ran away and became in every way unmanageable so that she was sent back to her mother. She still felt herself full of bitterness and resentment and confusion against everyone for breaking up the home, and when in some minor misdemeanor her mother threatened to send her back to Oklahoma she again ran away and stayed in hallways and on the streets for days until found by a milkman. Then she was taken to Children's Court and brought to us for observation. Her IQ was 84. She was 11 years old.

She said:

> I ran away. It did it four times. My mother threatened to send me back to Oklahoma. I was there 18 months. I didn't like it there. I wanted to be with my mother and brothers. I ran away there too. I didn't like my uncle. He only liked my sister. My father got sick in 1933 or 1934. He had an automobile accident. That is what I was told. I saw him that morning and he seemed all right. When I went to Oklahoma they said I was going on a vacation. I saw my father down there. He escaped from the hospital, but I hardly ever saw him. My aunts wouldn't let me. They said he was crazy, but he isn't; if he was, the hospital would go get him and take him back. They told me my mother was dead, too. They wanted to adopt me. I think my aunts are nuts. They say he is sick, but they let him out of the hospital once. He was all right then.

This child was extremely full of bitterness; her argument was that her father was no more crazy than her mother was dead. She was always tense, unhappy, and harassed. She was always in conflict with someone, but improved with sympathetic handling and a full explanation of her father's condition and her mother's problems. She accepted our advice to enter a Catholic school. Her blood and spinal fluid Wassermann test were negative.

Case 35. Harold was a 13-year-old boy with an IQ of 82. He was taken to court by his mother and a charge of neglect was made because she stated that he was in need of treatment for syphilis but refused to go to the clinics and had otherwise become difficult to manage. He had previously been before the Children's Court for hitch-hiking. His father had been in a state hospital for 20 months with paresis. His mother was receiving treatment. There were five children from 3 to 13 years old. Harold was the oldest and the only one with a positive Wassermann. He had been receiving treatment but refused to attend clinics because, "It hurts."

He said:

> Lately I don't go to school. I don't like it. I don't like to work so hard. I went to school when my father was home because he made me. The work only got hard in the last class. I would be better if they left me back a class. I have to go to clinics. I got the what-you-may-call-it from my father.

He said that his father is in a state hospital where he has been for 20 months because of a disease he got from women, and that the whole family has the disease from him. He expressed a strong sense of guilt and inferiority for the whole situation.

The mother visited the ward and reviled the child before all other children, calling him a "dirty kid with syphilis." She gave the history that her husband got syphilis while she was pregnant with Harold. She said that she did not want to visit him. She was full of bitterness. She said the boy quit treatment six weeks ago because it made him sick at the stomach. He wasn't going to school either, and, when she got the truant officer, he threw a temper and broke a window.

The child was very tense, harassed, apprehensive. He was a child of limited intelligence who was beginning to find his school work too hard and he was bewildered by the commitment of his father, and the painful treatment for which he saw no need and which hurt him and made him sick. He was further distressed by his mother's attitude of reviling him which was, of course, due to her own distressed state of mind over the broken home and the fear that the children would suffer from the disease they had inherited. He was returned to his home with a better understanding on the part of both himself and his mother.

Case 36. James was a seven-year-old boy with an IQ of 93. He was brought by his mother, through the Mental Hygiene Clinic, because of a behavior problem and for recommendation and placement. Both mother and teachers said that the child was indulging in all sorts of aggressive and destructive behavior, fire burning, stealing, etc. The father had been confined in a state hospital with general paresis since 1934. He was in a Veterans' hospital in July, 1932, for anti-syphilitic treatment.

The boy said:

> I am here because I am crazy for fights. I like it. You have a lot of fights and you have a black eye. Once you get me going I like it more than anything. I like to get hit by my mother when I am bad. I run out on the streets and then I run up to my mother and get a licking. I could get hit by an iron bar and never cry. I like it more than anything. I used to swear before my father went away. But I don't do that no more. He used to curse at me and I would swear right back at him. I thought it was fun. Now I see it ain't. My father is in a state hospital. It is his brain, his head—because he cursed. He used to hit me and curse at my mother and she tried to stop him and he hit me for nothing, so the state hospital came out after him. He got gassed in the war. Then when he cursed the gas got started up. I don't know which way. He does the cursing because he is sick in the head. I am a little bit nervous because my father was nervous. I am named after my father."

He was not much trouble on the ward, although a sly trouble maker, but well-liked. Most of his bad behavior was only a boast. We see here a behavior problem in a child that is suffering from a broken home, the loss of a father, and a harassed, worried, inadequate mother. Furthermore, there is some tendency to identify himself with his father, being at the age when the identification processes are natural and because he has the same name as his father and because they both swear. He had a unique theory of the cause of his father's mental illness. He also had a reading disability which prevented his normal adjustment to school and gave him added grounds for feeling inferior without his being able to understand the reason. His blood and spinal fluid serology was negative. He was sent to an institution for normal boys.

Case 37. Herman was a colored boy of 11, with an IQ of 83. He was brought to the Children's Court six times between 1932 and 1935 for delinquency such as truancy, running away from home, snatching pocketbooks, etc. His mother died when he was two years old and he lived with his father and his stepmother. His father had been known to courts and numerous social agencies as a periodic drinker. He was arrested in 1935 for forgery and sent to Bellevue where it was found that he had general paresis. He was committed to a hospital for the criminally insane where he is receiving treatment for paresis. His stepmother was an aged woman who had been crippled with hemiplegia for five years. She had attempted to care for Herman since he was two years old, but he had spent much time with other relatives, in institutions, etc., and was entirely undisciplined and self-willed. However, the court considered him more neglected than delinquent. In the past six months he had not attended school, had wandered the streets and, among other things, had sustained an automobile accident in which he suffered a fractured skull and fractured knee, and this had been followed by a mastoid operation. After recovery from this he was committed to a home for colored boys, but refused to go and became so obstreperous in court that he was sent to Bellevue. He told us he had been in trouble since he was five years old when he would wander away from home, get lost, and ride the subways alone.

He said:

> My father is in a state hospital. I think it is for appendicitis. He never drank and he was never arrested. My stepmother is good to me. She took care of my clothes and fed me. I don't want to be sent away. The boys taught me to steal.

It is clear that this boy's behavior problem is related to the inadequate care he had from an unprincipled father, from the early loss of his own mother, and from the inadequacy of his stepmother. It is most interesting that he would not openly recognize the troubles that his father has been in, and tried to excuse himself although it was quite obvious that he was anxious, tense, and worried about the whole situation. The blood and spinal fluid serology was negative.

In the next two cases the parents did not have general paresis, but had syphilis associated with some other psychopathy, and the children had both inherited the syphilis.

Case 38. Stella was a 13-year-old girl with an IQ of 96. She was sent to us from the Children's Court where she had been placed on petition of her mother who complained that she stayed up late at night, was disobedient, talked back and was unmanageable. There were two younger sisters who were no problem to the mother. The history by the mother showed that she had known she had syphilis two years before this child was born, had started treatment, but stopped it when she became pregnant, and took no further precautions to protect herself or the child. The father was said to have a mental condition and was observed for the same in some hospital, but the mother would not give us data that would enable us to check this. The three children were placed in an orphan home when Stella was three years old. When she was eight years old she developed keratitis and was found to have syphilis. The other two children were not infected. Stella spent much time in hospitals and received the routine treatment. Meanwhile, the father died of an accident (?) and the mother said she developed a paralysis and poor memory and entered an observation hospital where she was diagnosed as a case of involutional psychosis with hypochondriasis and syphilis but without involvement of the central nervous system. The mother then obtained a widow's pension and took the three girls. The two younger children appeared normal but Stella showed a resentment against the mother and no affection for her sisters and was self-willed and obstreperous, and this had increased in the past three months with the onset of puberty. The mother thought she might be a mental case because she had syphilis.

On our examination, her serology was entirely negative and there was no evidence of syphilitic involvement of the central nervous system. The syphilitic infection and eye condition had been well treated but the child was emotionally unstable, and openly expressed her lack of affection for her mother and sisters and stated that she preferred to live in an institution for girls. The behavior difficulty here is easy to understand in the light of the child's life history. The hypochondriacal tendencies of the mother, undoubtedly increased by her own feelings of guilt in connection with the girl, had led her to the opinion that the child was mentally sick. Stella was placed in a school for girls.

Case 39. Alice was 10 years old when she was brought to us for the second time from the court on a charge of neglect when her mother was arrested for drug addiction and was placed in detention for her third drug cure. The mother has been divorced by her first husband for adultery, and she lived with the father of Alice off and on for 12 years without marrying him. He was a drug addict and initiated the habit in the mother. He was arrested in 1935 for drug addiction and selling drugs, and sentenced. He had had a previous cure. The mother was one of nine siblings all of whom are responsible citizens. The mother had also been in Bellevue and sent to a state hospital after an arrest where she remained for five months. At the time Alice was born (1925), the mother was in prison. The child at the age of two months was placed in the Home for Hebrew Infants. Her Wassermann was found to be four plus. The mother was arrested for prostitution in 1927, and the child was before the Children's Court on a charge of neglect and sent to an orphan's home. In 1929, she was taken out by the mother without permission. She was again taken before the Children's Court on a complaint by her grandmother. The child said that her mother took her around to disreputable resorts and used her as a messenger to deliver drugs. She was returned to the Orphans' Home in 1931 and later placed in boarding homes, but she could not adjust in any home. Alice was in Bellevue in 1934 and was found to have syphilis. She was given the hot-box treatment at Psychiatric Institute until the central nervous system serology was negative. There remained no evidence of the syphilis except for fixed pupils. Psychometric tests gave no evidence of deterioration, but the child was absolutely unadaptable to other children. She would not accept the routine of children, always wanted to have her own way and to be the center of attention of adults. Otherwise she had unrestrained temper tantrums which she produced at will. For instance, if she was interested in her play and supper was called, she would not want to go and would get angry because the other children went and stopped the game. She refused to go to school, etc. She told that her mother took her out of the Orphans' Home without consent; that the mother took drugs daily, and her father tried to earn a living by selling liquor without a pass.

This child had suffered from an unusual combination of misfortunes. Her mother was a serious psychopathic personality but came from a family in which eight other siblings were normal. The mother was a drug addict herself and was syphilitic. She served sentences for drug addiction and was in a state hospital with a psychotic episode. She exposed the child to all sorts of abnormal experiences from an early age, and forcibly removed her from protected environments on several occasions. The father was a criminal, a drug addict, and an alcoholic. The child herself had been subjected to all kinds of unusual experiences, to many different "home" environments, to institutional care, and every form of insecurity. Furthermore, she has syphilis and at one time was considered a case of juvenile paresis for which she had been treated by the hot-box. The syphilitic process had apparently become quiescent. Her behavior problem was a serious one but seemed to be clearly motivated by a conscious effort to have her own way and disregard all social regulations. She seemed to be a classical case of psychopathic behavior problem such as one sees in children who have been improperly reared in the early years of life.

She also had syphilis of the brain and had a bad heredity, but her behavior conduct could largely be accounted for by her life's experiences. With this in view, every effort was made to retrain her. Finally it became necessary to send her to the children's division of a state hospital because she could not be adjusted to any other group of children.

SUMMARY AND DISCUSSION

Seven cases of children who had parents with psychoses associated with syphilis are reported. Three of these children had syphilis and in one case the syphilis had involved the central nervous system. In three of the cases there were indications from the history of other psychopathy in the parents. Nevertheless, a study of the case histories of these children would lead us to believe that their behavior problems were best understood in the light of their life history and unfavorable experiences. In this group we see neurotic, psychopathic, and reactive features, but one of the constitutional features which were observed in about one-third of the children of schizophrenic parents. This group is a much smaller series of only seven children and is, therefore, of no statistical value.

In children who have syphilis there is the additional factor of the need for treatment for a disease which the child does not feel and does not understand. Besides this group of children we have observed another group of syphilitic children whose parents are not psychotic and where the child showed no involvement of the central nervous system. Such children may become behavior problems in reaction to the experience of receiving the treatment. The child usually experiences some feeling of guilt and shame which he cannot express. One child told us that he got the disease from scratching mosquito bites; he felt this was a very severe sin. Other children are told, as Harold (Case 35) in this series, that the father had given them the disease after being a very wicked man. Besides, they must report regularly to venereal clinics, which is not the best place for children. Behavior problems of this type often improve if the child can be given a few months' rest from treatment.

7. CHILDREN OF PARENTS WITH ALCOHOLIC PSYCHOSES

This group includes only children whose parents had been institutionalized for alcoholic psychoses. Many more children came to us for observation who gave histories of grossly alcoholic parents who abuse the children, neglect and terrorize them and where such alcoholic histories were confirmed by social agencies. These are not included in the present study. Usually children of such parents are brought to court on charges of delinquency for running away from home. The children often tell us that the mother or father is crazy part of the time; they say that they talk to the wall, that they lie all day in a heavy stupor, and send the children out for more liquor. One child told us of waking up and finding his mother dead on the bed beside him with a whiskey bottle under her pillow, and he knew she died from drink although other members of the family insisted she had died of a "hemorrhage." The majority of children from such homes as these are subject to conduct disorders, running away, truancy, and stealing, with more or less severe neurotic features depending on the extent to which the child has been made to suffer fear, anxiety, and guilt for his own supposed sins and for the sins of his parents.

Case 40. Mary was brought to us from the Children's Court where she had been taken by her mother on a charge of delinquency for running away from home. She was a 10-year-old child with an IQ of 81, the third in a family of six. She had a right facial paresis due to surgical treatment for a birthmark. This disfigured her face slightly and she was very unhappy about it.

In 1922 before Mary's birth there were complaints from various sources that Mrs. M. was a confirmed drunkard and the children were neglected. The reports were found to be true but Mr. M. was unwilling to take the children from her although he often complained about her. In February, 1925, Mary (then an infant), Edward, and John were committed by the Children's Court to an orphans' home and released to the parents again in April, 1927. Mrs. M. continued to drink and in December, 1929, she was confined to a state hospital with diagnosis of acute hallucinosis and delirium tremens. In November, 1930, she was paroled to her husband.

In 1934 Mary was found to be staying out all night, sleeping in hallways and showing a distaste for her home surroundings. Recently complaints had come from school and a relief investigator that Mary had been playing truant, spending time in movies, and begging for money to buy milk for the babies. When interviewed Mary's mind seemed far away, and while she showed no fear of her mother she seemed to want to avoid her. The child said:

> Kids make fun of me and call me "night gown," say I got nits and I'm diseased, make fun of me because I'm not smart in school. I don't like home. My mother wants me in the house and don't let me out to play. Sometimes my mother kicks me if I'm bad. I run away because I don't like it in the house. Sometimes I stay on the street and beg; say the baby needs milk or my mother is sick and needs a doctor.

An investigator from the Children's Society reported:

> The mother became wildly excited and refused to keep her at home. The mother is hallucinating and has ideas of reference. The child refuses to stay at home; is in fear of mother. The child has become neurotic; giggles, talks of seeing things, makes up numerous imaginary stories, at times becomes excited and elated. She tells a vivid story of a man chopping a girl's head off. She insists that she really saw this but she is unable to give details. She fabricates freely.

She was admitted to the children's ward and the mother said:

> I took her to the Children's Society for running away. They had a charge against me of drunkenness. They are trying to prove something. I have some enemies. I must have enemies. I keep away from people. I don't understand. They accuse me of drunkenness. I don't understand. They say she is afraid of me. She is full of imaginations.

The mother was suspicious and evasive.

Mary said:

> I run away and go to the movies. I like cowboy pictures, Tom Mix. He goes after the crooks who stole the money and at the end he marries the girl because he loved her and because she was beautiful and charming, especially her face. I'm not happy at home. My mother gets drunk on holidays and on my sister's birthday, every Christmas and before Christmas. She drinks whiskey. My father doesn't drink often. He gets drunk sometimes Saturdays and Wednesdays. My mother yells, she

> talks to herself and talks to the wall; she thinks somebody is talking to her. She says, "What do you say?" and then she curses. I run out because sometimes she gets very drunk and she hits me and beats me. She says, "Get out of here, get out of here." I don't like school because the kids tease me. They say "Mary isn't smart and her mother gets drunk and goes out on the streets." *(Who is your best friend?)* I don't know. My dog, I guess, unless it is my Teddy bear. *(What is a mother good for?)* To mind the children by taking good care of them, by not hitting them. A mother isn't supposed to drink and she is not supposed to talk to herself.

Here we have an ungifted child with a disfigured face who has reason to consider herself dumb and homely and who in infancy was deprived of her mother's care and placed in a nursery because the mother was in a state hospital with an alcoholic psychosis. All of the rest of her life she has been subjected to a deluded alcoholic mother who has been somewhat antagonistic to her because she was partially raised by someone besides herself. The child is terrified by her psychotic mother, does not progress well in school, finds no one to sympathize with her, and naturally runs away. She is destructive of pretty dresses or anything that is given her to make her pretty, unhappy with other children, and tends to confabulate some dramatic stories which probably have some of the features of her mother's alcoholic dreams.

Case 41. William, an 11-year-old boy with an IQ of 104, was brought to us from the Children's Court on a charge of delinquency made by the father who complained that he ran away from home, was a truant from school, played with bad associates, and refused to obey his father. The father was known to be a heavy drinker and his wife complained several times in court of his drinking and non-support. In 1930 he served a month in the workhouse and on release came home drunk and refused to return to work until taken to court again. Four years ago the mother was killed by a taxi. Up to that time none of the children had ever been in trouble. Subsequent to her death, James the oldest boy was taken to court on three occasions and finally sent to Elmira for burglary. Thomas, the second son, was before the court twice and sent to the Catholic Protectory; Mary, the third child, was before the court once on a charge of wayward minor. Denis, the fifth child, and William, our patient, were before the courts for running away and a charge of neglect made against them. Joseph, the youngest and sixth child, had been cared for by an aunt and was no problem. In the last year the father had to give up his work with CWA as a longshoreman because of progressive alcoholic neuritis, and he was admitted to Bellevue for acute alcoholic hallucinosis and alcoholic neuritis. Nevertheless, he told the probation officer that he had given up drinking since the death of his wife and devoted all of his interests to his children. At that time the probation officer did not know of his record in our hospital. It is not surprising, of course, that this boy should develop delinquent habits under these circumstances. He showed some neurotic features also, being self-conscious, apprehensive, an uneasy child who could get very little satisfaction out of the activities of the other children. He was naturally apprehensive as to his future.

Case 42. Nelson was a 13-year-old colored boy with an IQ of 85. He was sent to us from the Children's Court on a charge of delinquency. The grandmother made the petition, claiming that this boy had been left to her care and because of truancy and running away she could no longer manage him.

His mother had been on our wards in 1927, when Nelson was five years old, with a rather severe alcoholic encephalopathy. She was hallucinated and showed many neurological signs including nystagmus of the eyes, rigidities of the limbs, slurring speech, and emaciation. Her husband was advised to commit her to a state hospital but after three weeks he removed her, against advice. She was admitted again six months before Nelson was brought to us and died in 10 days of alcoholic encephalopathy. The father deserted Nelson at that time and the grandmother attempted to care for him but found him incorrigible. It was not possible to get any clear picture of Nelson's home life with a mother as seriously alcoholic as his must have been for the whole of his life. He appeared bright and alert but would not discuss his past life, and under observation proved to be completely untrained, restless, unable to adjust to any routine, or concentrate on his school work. He was popular among the children because of a gift for singing which compensated a little for his inability to adjust to any other social demands. He admitted he hated schools and had been hanging out with a gang of delinquent boys.

Case 43. Joseph was an 11-year-old boy of superior ability, with an IQ of 127 and with special ability in art. Nevertheless, he was retarded in school. He was brought to us from the Children's Court on a charge of delinquency for entering an apartment and stealing a watch and chain and five dollars. His father was known to have been an incapacitated chronic alcoholic for many years. In 1923 he had been in Bellevue and a diagnosis of alcoholic psychosis with schizophrenic features had been made. Commitment to a state hospital had been advised but his wife removed him from the hospital against advice. It was said at that time that he would wander away from home and get lost. He would stand about in a dazed and almost catatonic fashion. He showed no affect, and no contact could be made with him. The homelife was reported to be very disagreeable, as one might well expect. There were eight children. Two sisters had been committed to reform institutions. The family was on home relief and it was said that the father would get the check and spend it on liquor. Joseph spent all his spare time in a candy store where he helped about a bit, mainly to keep himself away from home and off the street. The owner of this store was supposed to pay him but often neglected to do so, and Joseph, of course, had no way of forcing him to do so. The mother requested that he be sent away from home as she said he stayed away from the house as much as possible and she did not know how he spent his time and she had no control over him. He never brought any home-work from school and showed no interest in his school work, although if properly motivated this boy would undoubtedly have done very well in his studies.

Case 44. Carmine was a 15-year-old boy with an IQ of 97. He was in second term high school. He was sent to us from the Children's Court on a charge of sodomy, which he persistently denied with some conviction. His father had been in Bellevue in 1932 and was committed to a state hospital, with an alcoholic psychosis. The history then stated that the family life had been full of fights and quarrels for six years (before 1932). The father acted like a wild man for two years, coming home drunk, falling out of bed, demanding money of his wife by hitting her in the face. He drove his son-in-law and daughter out of the house with an ax. He talked to himself, said his wife hired a gang to kill him. He threw hot coffee on his wife and chased her out of the house with knives, etc. He was discharged from the state hospital in June, 1933, readmitted November, 1934, after a fight with his son-in-law whom he chased with an ax. He was again discharged in February, 1935. The day Carmine was accused of sodomy he said he had been watching his father play cards and made him angry so he chased him. Carmine left home for the park for several hours until his father had a chance to recover from his anger. The boy first said his father beat him, but later withdrew this and tried to protect his father. The boy said:

> When he is drunk he don't know what he is doing. What kills him is that he has an alcoholic system and the man in the back yard buys cheap alcohol and whiskey and brings it up to him. It just used to burn him up. But he is all right. He is useful. [*Father has not worked for pay for six years.*] He works in the cellar. He is all right. I never said he beat me; he never hit me. We are all happy when father is home. He is greatly improved since he came back from the hospital. He don't drink now. He works and keeps busy now. He is all right. It is my brother-in-law's fault. My father despises him.

He was uneasy and uncertain of himself, preoccupied and brooding; he became irritated with other children at times but was very much ashamed of himself afterwards. He was always on the defensive about his own inadequacy to do high school work and the unpleasant home situation.

This boy, if he was not guilty of the act of which he was charged, as he claimed he was not, was apparently implicated because the family had a bad reputation and because he was driven out of the home all day long by a dangerously threatening father. In addition, his personality had suffered very much from the family situation and the father's harassing threats.

Conclusion and Discussion

The five children discussed in this group show the behavior difficulties typical of the children of alcoholic homes, whether the parent's condition has ever reached the gravity of a psychosis or not. The children develop rather superficial conduct disorders, usually running away from home, staying away from home as much as possible, especially late at night, truancy, thievery, and delinquency with bad associates. There are in addition usually neurotic features characterized by apprehension, uneasiness, anxiety, and feelings of guilt and inadequacy, due to the many threats made by violent alcoholic parents, and the shame of seeing a parent in such a condition. Such homes usually belong to the lowest social strata, since the income is curtailed by the irregular working habits and is used up for alcohol. The families are often cared for by the social agencies. Nevertheless, the children are usually more neurotic than psychopathic because if the home is kept together at all it is due to one devoted parent, usually the mother. This at least affords the child some opportunity for normal personality development.

Gabriel (13) studied the career of 1094 children of 928 parents with alcoholism of sufficiently severe grade to cause hospitalization in mental hospital or institutions for inebriates. He claims that there was a large percentage of mental aberrations in these children, including alcoholism, criminality, mental disease of different sorts, suicidal tendencies, etc. But he concludes that there is an increase in abnormal tendencies already present, rather than an occurrence of new psychic difficulties.

8. CHILDREN OF CRIMINAL PARENTS

We will see in this group of 14 children all of the same types of behavior problems which were found among the children of psychotic parents, except that there are none of the schizophrenic or constitutional schizoid types of behavior, and in addition there are a relatively greater number of neglected defective children.

Case 45. Rosario was an Italian boy of 12, with an IQ of 55. He was brought to us from the Children's Court on a charge of neglect. He was found wandering on the streets and taken to a police station; when the father called for him, the father was in an intoxicated condition.

Family history showed that mother and father were married by exchange of photographs. There were seven children; two had disappeared, one was in a Catholic home, two were in an institution for defectives, and one was in an epileptic institution. The children have been before the court on charges of neglect on four occasions. The mother has deserted and gone to live with a man in Harlem, and has had three children by him. The father has been before the court on charges of felonious assault twice, vagrancy once, and incest once. The last charge was made by his defective 19-year-old daughter who gave birth to a child. Rosario had been in a school for defectives from 1932 till June, 1935, when he was taken out on application of his father, and since then had lived alone with the father and had not attended school. Rosario was a bullying, hyperkinetic child who knew of no way to respond to any situation except by aggression. He did not know fear and was the terror of the ward for the period that he was in the hospital. He was returned to the institution for defective children. He might be considered a psychopathic behavior problem implanted on mental deficiency.

Cases 46 and 47. Peter and Aido, ages 13 and 11 with IQ's of 65 and 71, respectively, were sent to us from the Children's Court on a charge of neglect. Their mother had died a few months before and when their father was sent to prison for "assault" they were left without care. They were fearful, shy, furtive children who were slow in responding to affectionate care. They improved rapidly in responsiveness as well as physical health in a short time in the hospital, and were sent to an institution for defective children.

Case 48. Henry was a 13-year-old boy with an IQ of 53. He was sent to us from the Children's Court on a charge of delinquency from a Catholic school where he had been placed when his father went to a penitentiary. He was charged with setting fire to several cottages to the value of several thousands of dollars, together with another boy. It was found that the other boy was of normal intellectual level, but a neurotic boy who obtained satisfaction from setting fires and used this boy as an accomplice. He was led by the brighter boy to think that he could get away from the Catholic institution and return to his mother if he set the fires. He was committed to an institution more suitable for his mental level. Three siblings made a satisfactory adjustment in the Catholic school.

Case 49. Joseph was a 15-year-old boy with an IQ of 74. He had also had a skull fracture at the age of six. He was retarded in school and was becoming unmanageable. He was sent to us through our Mental Hygiene Clinic. His father had been in Bellevue twice the year before for alcoholism. He said:

> I can't behave in school; that is what they say. I get to 4B and they put me in the ungraded classes. I live with my mother and father and three brothers and two sisters. Sometimes my mother has to go out and ask for bread. My father had a good job but he got drunk and lost it. He gets drunk whenever he gets paid. He comes home and talks loud and wakes us up and beats us. He doesn't beat us except when he is drunk. My mother went to court because my father wasn't bringing in anything and we kids were all put in a home for six months. We got out in September, 1934, but my father is still drinking. My mother will be put on the street on Wednesday. If she is, she said she would put all of us kids in a home again. One of my brothers is still in a home. She said she might work or go back to her mother in Ireland. I didn't like it in the home, so my brother and me ran away and they put us in the reformatory. That Protectory was worse. My sister Helen (11 years old) is nervous, too, about my father. She yells out in her sleep. She is afraid of him. We all are. When we hear him coming home drunk and yelling, we go upstairs and go to bed. I am dumber than all the others. They can get 100 and I can't.

The boy was treated on the ward for a month and then sent away to the country for a month and came home much more at peace with himself and the world. The father had meanwhile disappeared. To what extent the severe skull fracture affected this boy's behavior is hard to evaluate, especially as he showed a severe tremor which appeared to be organic in type. However, there was no question but that his distressing home circumstances, due to the father, were an important factor in this boy's uneasiness as well as behavior difficulties in other children in the family.

Case 50. Joseph was an 11-year-old boy with an IQ of 79 and a reading disability that further handicapped him in his school work. He was sent to us from the Children's Court on a charge of delinquency because of severe temper tantrums in school in which he became violent against children and teachers. He had been in court in 1925 at the age of 10 months because his mother was in the hospital, his father not supporting the children, and the grandmother was unable to care for them. They were all placed in a child-placing agency. The parents never got along well and frequently separated. The father drank and finally sexually assaulted a daughter and was sent to the penitentiary in March, 1935. There were six children: Florence, 16, who made the charge against her father, her sister Frances, 13, who was held as a material witness, and four boys, 1½ to 11 years of age, all supported by relief. Joseph's school work was reported poor; he was stubborn and subject to outbreaks of temper. He had a speech defect, and scholastically was retarded. He stuttered when telling that his father was in jail and said he was glad of it because his father was often drunk, beat him and his mother, and he did something to Florence. He said a kid in his class curses him and always bothers him, and that is why he loses his temper. He said he didn't want to stay away from home more than one week because his mother was home all alone with the baby, and only Joseph knew where to go to the lumber yards to get the wood and chop it up. So they would be cold if he didn't get home to get the wood.

On our ward he was subject to impulsive outbursts of temper. He would complain that he was being abused or not properly treated, although this was never observed. We see here a boy of very limited ability who is struggling desperately to replace a bad father in a harassed family. He has a very good understanding of the social situation and takes a very definite stand on the matter. He is obviously overburdened with the difficulties and it is not hard to understand the reason for his emotional instability. However, he explained his temper outbursts and bad language on the basis that he has seen and heard his father act that way. It was felt this boy was too valuable a member of his own family to remove him from it. His school was changed to give him a new start.

Case 51. Gloria was a 10-year-old girl with an IQ of 68, who was sent to us from the Children's Court on a charge of neglect. When she was first admitted our attention was struck by an acute chorea, Sydenham type. The history showed that she had been suffering from this for some months but it had been overlooked by relatives, teachers, etc., because they all felt there was enough in the social situation to explain her very nervous condition. However, she responded to fever therapy for her chorea and after a few weeks we were able to concern ourselves with the social situation. The father had served time in Atlanta, Georgia, for attempted assault on a 13-year-old girl. He had made many charges against his wife and she against him. They had both been into court many times. During the period Gloria was sick in the hospital, the father visited her with a black eye which he claimed he received from one of the soldier friends of his wife when he was prowling around her house trying to prove his allegations against her that she allowed the soldiers access to their 14-year-old daughter. The 15-year-old boy had been placed in a correctional institution after he ran away from the mother to live with the father and got in trouble. Gloria, being defective, was used as a bone of contention between the two. The father would tell the child many stories about the mother and try to persuade her to be disobedient and get into court and tell the tales about her mother. The mother would tell the child other stories to repeat. Finally, the grandmother with whom the mother and two girls were living, put the child out of the house and told her to go back to her father if she wanted to. Meanwhile, her behavior had become impossible in school, due chiefly to the chorea which had been overlooked. She was completely bewildered by the whole situation and would defend either parent in his presence. She was committed to an institution for defective children.

Care 52. Nora was a four-year-old girl when she was referred to us from the Mental Hygiene Clinic. This child has been discussed rather fully by Schilder and the writer (3) in a study on aggressiveness in children, where we pointed out that aggressiveness may develop in children as a result of nutritional deprivation. She was the fifth child in a family of seven and together with her next oldest sister was placed in an institution in another state for two years while her father was serving a penitentiary sentence. She returned home from that institution in a condition of marked emaciation, almost inhuman in her behavior, hiding in a corner all day except to come out for food; neither did she sleep well at night. Many months of care in a pediatrics service were needed to bring her near to a normal nutritional state. As she overcame her repressed behavior she became overactive and aggressive. When we saw her she was supposed to be very much improved physically but she was still very much underweight with a protuberant belly and lordosis. However, with proper care she improved rapidly both physically and in her behavior, although she showed no affection for her mother when she came for her and showed no interest in going home with her. After a year she was returned to the hospital with the history that although she was improved she still was not as happy in her own family as she was in the hospital. She was placed in an institution for normal children.

Case 53. Harry was an 11-year-old boy with an IQ of 105. He was sent to us from the Children's Court on a charge of neglect and delinquency. He had been before the court on several occasions for running away from home and thievery. His first appearance in court had been in 1930 when all of the children were charged with neglect due to the fact that the father was sentenced to the penitentiary for incest on his daughter. The mother was without support. Four brothers had been sent to a reform school and the sister to a Catholic school. Alexander (18 years old) was sent to a reform school in 1927 and recently sent to prison. John now (1935) is in the Tombs due to a petition which also involves Harry. William was at home; Mary was committed to a Catholic school. The youngest brother, William was reported to be nervous and a serious behavior problem in school. Harry was no problem in school when he attended but he often truanted and went with a gang who stole, etc. When a detective came to school to check on one of his episodes, he went into a violent temper outburst in which he said he wanted to be sent away because his mother was not his real mother anyway, but that he was adopted. He refused to pay any attention to his mother, he truanted from school, etc., tried to strike his mother, said she was not his mother, but that he was adopted. He refused to report to Probation Officer. He admitted he belonged to a gang and had refused to give up his associates because he could not bear being called a "sissy" by them.

On the ward he was at first aggressive, ill at ease, restless, bullying, talked in a hard-boiled fashion. In the schoolroom he did good work and developed a strong attachment for his teacher. He told her he went with a gang and often was the leader and that they teased him if he tried to break away. He spoke of one kid that he would kill when he got out for "ratting" on him and his brother. He often muttered to himself about the gang and seemed very bitter against it, but also often would speak in a gruff voice with bravado, and explained that he was keeping in practice for the time he would have to return to the gang. He said the gang would be disgusted if they could see how soft he had gotten in the hospital. He did his work well and often seemed more happy and relaxed, but whenever he was crossed or not allowed to be the center of attention he would become violent, sullen, antagonistic. Before final discharge he became very upset for two days, full of bravado and bitterness, tried to wreck the schoolroom where he had spent so many happy hours, and tried to organize other boys to rebel with him, saying: "Come on boys, let's wreck the place; no more work, what is the use; they pretend to be nice here but when you leave they will send you away to some terrible place just the same."

We were able to observe this boy's struggle against a career of crime. He even rejected his family entirely, by claiming that he believed he was adopted and did not belong to the family. The boy gave every evidence of being potentially normal but circumstances forced him into his delinquencies, his associations with a "gang," and his bullying hard-boiled mannerisms which he could drop when he received sympathetic care but which he quickly assumed again when he would even think about the time when he would rejoin the gang. He was placed in an institution for normal boys where he has been happy.

Cases 54 and 55. Herbert and Robert were brothers of 12 and

11 years, respectively. They were sent to us from the Children's Court on a charge of delinquency, made by the father who complained that they ran away from home and carried on sex acts together. The father said that shortly after he married his first wife he found that she was unfaithful to him and she went to live out at service. There she stole a diamond ring and was sent to a women's reformatory for three years. The 18-year-old son (Charles) was born there. On release from the reformatory she lived with her father, where a daughter Erna (14 years old) and these two boys were born. The father separated from her nine years ago, she died eight years ago, and he remarried. In 1932 Charles was accused of sodomy on these two boys and committed to a reformatory after breaking probation by truancy and stealing. Erna was a well-behaved girl. These two boys, however, were often found in the same bed and had been accused by a five-year-old girl of immoral acts. They stole, ran away from home, and were dishonest in school. The stepmother refused to care for them any longer.

Herbert had an IQ of 82. He said he considered himself bad because he did all bad things such as steal and run away. He claimed he did not know that his own mother was dead, although he admitted that he knew his father married the present wife five years ago. He said that he lived with an aunt before that time. He was anxious and evasive. The nurses reported that he was surly, disagreeable, always played with smaller children, showed little interest, and seemed dull.

Robert had an IQ of 96. He was more alert than his brother but did not want to discuss his difficulties. He adapted better to the routine. The stepmother said:

> It is supposed to be a case of sex perversion. I don't know if the older brother left a stigma on these two boys or not. They steal, set fires, go into cellars, and are getting worse and worse. I think they are both alike. Robert is a little cagier. There has always been a dishonest streak in them. It is worse in the last three years. I think the older brother had a bad influence on them. Herbert fought against it but Robert was small and passive. He plays with himself around the rectum.

In these cases it is the older boy of the criminal mother who acquired behavior difficulties that he apparently passed on to the two younger brothers.

Case 56. James was a 12-year-old boy with an IQ of 100. His mother and father married five years after his birth and lived together for only five months. The father drank to excess, deserted the mother, and returned to harass her whenever he could find her new address as she was continually moving to keep away from him. He was a professional burglar and recidivist and had served time in the penitentiary. In addition, the mother had served time twice in a reformatory for prostitution. James was cared for part of the time by his mother and was found by the Children's Society to be in a neglected condition; and part of the time by his father under conditions which are not known. For from six to eight years he was placed in boarding homes by a child-placing agency, but failed in six different homes and two schools. He was observed in Bellevue at the age of eight and considered a hyperkinetic child that looked very much like a post-encephalitic behavior difficulty, but there was no history of encephalitis and no neurological signs. He was sent to the children's division of a state hospital where he remained six months and was discharged to his mother in an improved condition, but subsequently failed to adjust in four schools. He was readmitted to Bellevue and showed the picture very typical of a post-encephalitic hyperkinesis. However, it was felt that this was the type of psychopathic behavior problem we often see in children who have experienced very distressing and insecure home life in the early years of childhood. He was returned to the state hospital. It was their opinion, as it was ours, that he should be classified as a psychopathic personality.

Case 57. Claire was a five-year-old girl with an IQ of 117. She was brought to us from a boarding home because of hyperkinesis. The father was a drug addict and had served time on several occasions both for drug addiction and for selling drugs. The mother, being pregnant twice when he was sent away, had placed this child in a boarding home. Her behavior was the typical distractible, overactive, inattentive, aggressive behavior of the hyperkinetic child who has no strong ties of affection and who feels herself deprived. She complained continually that her mother had given her away and that she loved the little sister more, since she called her Shirley Temple.

Case 58. Daniel was a 13-year-old boy with an IQ of 84. He was first brought to the Mental Hygiene Clinic by his father at the request of a child-placing agency. It was stated that the child had asked the grocery man for $3.80 which he spent on himself. He had done the same thing on several previous occasions. He was also a poor sleeper, a bed-wetter, and quarreled with his sister. He was the oldest of three children. He was retarded in school and had a bad temper. He always wanted things his own way. He reported to the clinic two weeks later and the mother stated that he had improved. Then he was taken to Children's Court a month later with the same complaint, that he had stolen a sum of money.

The boy defiantly claimed he had stolen what was reported but he said that if he had been his mother he would have stood by his kid. He said that she exaggerated. He admitted that he started to steal a couple of years ago, that he many times stole five and ten dollars at a time, but that he was about ready to quit when he got caught. He said that his father wanted to put him away in an orphan home. He said he quit wetting the bed after going to the clinic.

> I don't fight much because I don't get away with it. But I do get away with stealing. A kid squealed on me about the stealing last time. I don't like my sister—she shows off too much and thinks she is hot stuff.

He later told another doctor that his father has been convicted for robbery and sent to the penitentiary for five years, that he was away from home from the time Daniel was five to eight years of age, that now he sends Daniel out to shine shoes and makes him stay till he comes home with money, then spends it and all the rest he can get for liquor, and throws out the food for the family if he can't get money. The father's record showed a history of delinquency and criminality since the age of 11 years. He had been on probation for three years and, although outwardly conforming at home, is especially aggressive against this child whom he claimed he wanted to save from repeating his own career. Later, the child was in a panic for telling on his father. He said over and over that he was to blame and no one else. He said he was no good; that he is like his father and he knows he will be sent to reform schools and, once he is sent away, he will never come back because he hasn't the guts. He told the teachers that he is used to a beating a day and he could not do his work until he got it. Every day he behaved badly until punished; punishment was followed by a period of absolute dejection in which he restated that he was no good, and this in turn was followed by a period of blaming his father and saying that he hated him for what he had done and what he was, but would then say that his father is forgiven now and he was not to blame for his son's badness; that only he, Daniel, was to blame for his own. After that he would be good and fairly content for the rest of the day. This boy demonstrated a marked picture of identification with his father with distressing ambivalent attitude of hatred and guilt and a feeling of hopelessness as far as his own future was concerned. Again, this boy's identification processes were due to the fact that the normal processes of identification with the father were disturbed during the critical early years of childhood, due to the fact that his father had, when Daniel was five years old, committed a burglary and then at that time sentenced for criminal behavior. Although he was supposed to know nothing about it, he actually had vivid memories of his father's going away and knew all the details, which were elaborated for him by relatives. At the same time the home was deprived of the father and all the child's devotion was directed to the mother, but without complete satisfaction. The Oedipus situation was not satisfactorily worked out.

Conclusion and Discussion

In this group there is nothing new that we have not already seen in the children of the psychotic parents. There are a greater number of neglected and misused defective children. There is a young child, Case 52, who showed an exaggeration of infantile aggression due to nutritional deprivation while her father was serving a prison term. There is a case (Case 53) of severe conduct disorder due to the associations with delinquent brothers and gangs in the neighborhood where the child lived and the hopeless struggle against a career of delinquency which even led the child to deny his family by claiming that he had been adopted. There are two cases (Cases 56 and 57) of severe psychopathic personality in children who were deprived of normal home life and parental affection. There is one boy (Case 58) who showed the same type of identification process of a son for a father that we saw among boys of paranoid fathers. In this case, however, the identification of a boy with his criminal father leads to marked ambivalent attitude towards the father and severe feelings of hatred for the father and guilt towards himself, which result in acute emotional crises almost daily. There are no schizoid children. Neurotic features are seen in exaggerated feelings of guilt, futility, and hopelessness.

9. CHILDREN OF PARENTS WHO HAVE MET A VIOLENT DEATH

By way of completing this series of case studies, two children will be discussed who each had a parent that met a violent death due to psychosis or criminal behavior. In the first case we will see the typical identification processes in a boy whose father was killed by fellow gangsters in the course of a life of crime at the time the boy was five years old. The second one is a boy whose mother committed suicide when he was an infant, in the course of a psychosis, and the boy, who was not wanted by those who have cared for him since, was led to believe that he was responsible for her death because she knew he was going to be bad.

Case 59. Anthony was 10 years old, with an IQ of 94, when he was first brought to our Mental Hygiene Cinic in 1930 by his mother, with the complaint that although the boy had been trained to cleanliness at the age of two, that for the past three months, without any reason, he started to soil and wet himself. He would defecate in bed and hide the feces behind the bed, bathtub, in the corners, etc., or smear it on the walls. He was a liar about everything and could not get along in school. He was beyond control of mother and teacher.

> Five years ago my husband died and I went back to work. This boy and his sister (two years younger) were cared for by my mother. She spoiled them and gave them their own way in everything. He has become obstinate and wilful, has temper tantrums. I was worried about the boy because his father was a thief, accidentally shot at night, and I think the boy is following his father's ways; but he was all right until I remarried last year.

Five years later, the mother brought him back saying,

> He has gotten worse since I was here with him. I don't want him to grow up like his father.

The Crime Prevention Bureau states that the boy was reported to them for keeping a bicycle he hired, and selling it and staying away from home. The father had been shot by gangsters with whom he associated. The mother admits that she was happier with her first husband who supported her better and had a nicer personality than her second husband. The second husband constantly criticized the children of the first marriage. There are two other children by the second marriage. Anthony was reported from school for stealing money, fountain pens from other children, and cakes from bakeries.

The mother said:

> My first husband was killed. He went out in hold-ups with gangs. He got big money. He was shot by one of the gang. We had everything we wanted but I was always in deadly fear that he would kill somebody or get killed. I have told Anthony all about it; I have told him he will end the way his father did. I told him in front of the detective from the Crime Prevention Bureau. I have talked about it in front of all the children. I talk about it a lot. Usually he is a good boy; he never refuses to do anything for me, he is good-natured, but he is afraid of his stepfather. He threatens to put him away. He is very strict with him. He used to hit them but I won't let him any more; but the boy says he used to hit him when I was away. He would kick him so severely that I was afraid he would cripple him for life. He won't let him out and play with the other boys because he wets the bed.

The boy tends to shift the blame for his stealing on other boys involved. He says:

> My stepfather is mean. He doesn't let me go out and play. He is mean to my sister, too. I was five years old when my father died. My mother worked and my grandmother took care of us. I was happy then. My mother liked my own father best. My stepfather is mean. He hollers.

Case 60. Edward was a 10-year-old boy with an IQ of 85. Neighbors had complained to the Children's Society that the child was beaten unmercifully, although he was brazen and it was realized that he called his parents bad names and would not obey them. The child admitted that he was bad, but said he was beaten with a rope and a hose, which the parents were obliged to admit. He was brought to the children's ward. There he said:

> Mother committed suicide. She had St. Vitus's dance; you get it in the head and it makes you shake all over. I had it too. I used to curse a lot but I quit it. It was bad. I sometimes think it was my fault and sometimes the St. Vitus's dance that made

> her die. They said it was because I would grow and get big and she didn't know if I would be bad or not. She must have known that I would be bad. I got the St. Vitus's dance from being bad, too. I went to a movie when I wasn't supposed to and saw a picture about a mummy and I came home and dreamt about it and got scared and when I woke up I had the St. Vitus's dance. I know my mother must have done something bad. She must have got something in her head. All the kids told me when I was living at my grandmother's house. She used to live there too. They told me that she killed herself; that is all I know. I know it is bad to kill yourself.

For two weeks he was very difficult on ward and then he suddenly began to improve. He gained weight, stopped chewing his fingers, and was happy and contented. He said he found out after awhile that he wasn't going to get hit.

In this case the "bad" behavior was a direct reaction to the boy's anxiety and distress, as well as his own feelings of inadequacy and the conviction that he was bad.

These two cases illustrate all of the principles of distorted identification processes, anxiety, the results of the broken home, unsympathetic step-parents, the unjustified sense of guilt and shame, reactive neurotic behavior, and social maladjustment.

GENERAL DISCUSSION

Statistical Data

Sixty children with some form of behavior problem which necessitated observation on the Children's Ward of the Psychiatric Division of Bellevue Hospital and who had psychotic or criminal parents are discussed. They were otherwise unselected cases. It is found that 24 of these children had a schizophrenic parent. Six had a parent with affective psychotic episodes. One had a defective parent. One had an epileptic parent. Thus 32 had parents with endogenous mental disturbance. The remaining 28 had parents with syphilitic psychoses and alcoholic psychoses or criminal records. These may be considered to be exogenous disorders.

The statistical study of the children of schizophrenic parents shows the following: there are one-third girls and two-thirds boys. This is exactly the proportion of girls and boys sent to the hospital for observation. However, two-thirds of the parents were mothers and one-third fathers. Two-thirds of the children were in the age of early puberty at the time their behavior problems became critical, although more than two-thirds of the parents had become mentally sick and had been hospitalized before the child was 10 years of age. The range of IQ was from 60 to 120, with the peak of the distribution between 80 and 85. These 24 families had 57 other children, making a total of 81 children. This is an average of 3.4 children per family. It was a matter of record that 15 other children of these families were behavior problems of delinquents, making a total of 36 children, or 48 per cent.

A similar statistical study of the group as a whole shows the following: There were one-third girls and two-thirds boys. There was a relatively larger number of boys in the group of children of alcoholic fathers and a larger number of girls in the group of children of parents with affective psychoses, but these two groups are each too small to be of any statistical value. Whereas in the schizophrenic group there were two-thirds mothers to one-third fathers in all the cases, exclusive of the schizophrenic parents, this relationship is reversed so that there are two-thirds fathers to one-third mothers. This is due especially to the larger number of syphilitic and alcoholic fathers. It may be noted that in the majority of these cases the behavior disturbance is in the nature of a conduct disturbance more or less superficial and directly in reaction to the unfavorable home situation, or else the mother is also lost to the home for one reason or another. In the 36 families, exclusive of the schizophrenic group, the number of children, under the age of 10 when they were brought to us for observation, was only six or one-sixth of the total group. The psychotic or criminal behavior in the parents occurred in the majority of cases at a much earlier period. This again emphasizes the significance of early puberty as a vulnerable age in children who have been subjected to unfavorable home-life and parent-child relationship in early childhood. The child of a schizophrenic parent has a greater chance than the child of any of the other groups of becoming a behavior problem before puberty. The IQ distribution is from 50 to 130 with the peak of the distribution from 80 to 110, showing a somewhat wider range of a distribution than was seen in the schizophrenic group.

For the 60 families there was a total of 198 living children. This is an average of 3.2 living children for each family, and is practically the same for the schizophrenic group alone. Besides the 60 children discussed here, 40 siblings were recorded to the behavior problems or delinquent. This is a total of 100 children, or 50 per cent. Thus our study of behavior problems in children of schizophrenic or other psychotic or criminal parents is somewhat higher than those reported by Canavan (10), Ramage (24), or Lampron (19). However, our studies represent a selected group of families in which there is one known child with a behavior difficulty. On the other hand, the percentage estimated in this group of cases is a minimal one, since no effort was made to check up on the siblings of the children under observation, and only those are included in the statistics that happen to be on record. In some cases, although the children reported were observed in the last one and a half years, the family records available were several years old.

TYPES OF BEHAVIOR DIFFICULTIES AND ETIOLOGICAL FACTORS

The families with schizophrenic parents show the greatest variety of behavior difficulties. There was a case of real pre-puberty schizophrenia. This was probably hereditary. There were two cases of constitutional schizoid deviates. This type of reaction is probably more or less specific for the schizophrenic heredity. Bowman and Kasanin (7), in defining the constitutional schizophrenic, state that a relative, usually a parent, is psychotic and usually schizophrenic. The constitutional dissociation should be present in all parts of the physical and mental makeup. Under stress and strain the schizoid features may be increased to the point of a psychotic episode. The children are prone to make comparisons between themselves and their psychotic parent.

Children who are intellectually inferior may appear seriously retarded when left to the care of a schizophrenic mother who inhibits their normal development and their contacts with other stimulating opportunities. Such a child may appear grossly defective at first and may not be defective at all. Presumably, a normal child might be inhibited and retarded in the same way. Such children respond rather quickly to a normal environment, although they may retain some neurotic features and appear to have schizoid traits due to their apathy and fear of the environment.

Cases of *folie à deux* in children are rare. The only one reported in this paper was in reaction to a grandmother who had replaced the mother after the child was five years old. This may be significant. It is probable that the close emotional relationship normally present between a mother and a child precludes the likelihood of an intellectual identification such as occurs in *folie à deux*. Where distorted identification processes occur, they occur on an emotional level. Such distorted identification processes with distortions in the child's personality occur in boys whose father has developed a paranoid psychosis during the child's early years or during the period which should lead the boy through the Oedipus stage and aid him in the development of the super-ego. Such boys who would normally identify themselves with a normal father, and look to the mother as the love object, acquire many of the paranoid attitudes and reactions of the father and show a strong negativism for the mother who was the object, usually, of the father's paranoid delusions. The distortion in the personality of these boys is very striking. There occur marked ambivalent emotional reactions toward the father and mother and towards themselves; there is considerable sympathy for the sick father and hatred of the mother with a paranoid attitude towards society and episodes of distressing emotional instability and strong feelings of superiority. The withdrawal from society, negativistic attitudes, and paranoid features may suggest the constitutional schizoid personality, but there is no constitutional inferiority of the part functions of the personality such as the motility, autonomic functions, perception, and intellectual processes. Similar identification disturbances were not seen in girls either in relation to their fathers or their mothers. The identification processs in girls are different than in boys and there is a greater range of choices, apparently. The daughter of a schizophrenic mother may show severe personality deviations of a somewhat different type. They are never contented and they resent the psychosis in the mother which deprived them of the mother and of the normal homelife. They appear to be constantly seeking the home and parent-child relationship which they have missed. They remain infantile and resent maturity and are consequently emotionally unstable. For the same reason they tend to withdraw from the activity of normal girls and appear schizoid without having any evidence of constitutional inferiority. The psychopathic type of behavior problems may be seen in either girls or boys who are deprived of any normal homelife or the chance for any normal parent-child relationship in the early years of life or where such relationships are ruthlessly broken in the critical period before the fifth or sixth year. These children are characterized by hyperkinesis, the random expression of all their impulses, a complete lack of restraint or inhibitions, a lack of human attachments or the ability to form them, a lack of anxiety or sense of guilt, an inability to attend to any routine or studying, an inability to respond to training. Consequently there appear all types of asocial and infantile behavior. They are always seeking satisfaction but give nothing in return and attempt to dominate by temper tantrums. They closely resemble the post-encephalitic or post-traumatic personality deviate, but do not show any neurological disturbances. This type of psychopathic personality results from the absence of any parent-child relationship in the early years with the inadequate development of the super-ego. The personality deviations usually present themselves early in life. These children do not suffer from a psychotic parent so much as the loss of both parents and the broken home. Children of schizophrenic parents may have the same chance to develop neurotic behavior disorders or conduct disorders that other children do who are deprived of the normal home environment or a parent at times when they are in need of them. These disturbances occur when one parent is lost and the child does not have the opportunity to work out its normal identification processes through the Oedipus stage, or where the home is broken after the personality is fairly well developed but the child is still in need of the parent-child relationship to protect him from anxiety and fear. It may occur in children where a step-parent takes the place of a loved parent, the memory of a loved parent, or replaces the child in the affection of his own parent. Such children may show infantile reactions, be unwilling to grow up, tend to run away from the unhappy home, use attention-getting mechanisms, become hypochondriacal, or develop any one of the numerous neurotic behavior patterns, or become defiant and delinquent.

Fewer children came to us for observation of behavior problems who had parents with affective psychoses. The majority of these were parents with personality or intellectual deviations or inferiority who were also subject to episodes of psychoses which required hospital care from time to time. Only a few showed typical manic-depressive psychosis. The only evidences of constitutional inferiority in the children of these homes were seen in two cases of mental deficiency, one of whom had suffered from the antagonistic care of an inadequate mother, the other from the experience of the psychosis of the mother and the father's unsympathetic attitude, and finally from the broken home. Two children showed the typical psychopathic reaction due to the broken home and lack of normal parent-child relationships in the early years. Two other children showed neurotic behavior problems. One of these was an example of antagonistic behavior on the part of a little girl who resented the efforts of the mother to take her away from a foster home and foster parents that she loved, especially as the mother had no real interest in the child. The second was an example of compulsive neurotic behavior in a boy who had been made to feel very inferior by a severely psychopathic father.

A mentally defective mother may give birth to a potentially normal child who may appear defective when raised in an unsuitable environment but will respond rapidly to a normal environment. Blau and Averbuck (5) described such a case with catatonia.

An epileptic mother may in her episodes of epileptic furore so terrorize a child with threats of violence typical of the epileptic make-up that the child may acquire a severe neurotic condition. In the case described, the neurotic behavior was superimposed on a constitutional defect and gave the impression that the motor disability was much more severe than it really was.

Children of parents who have suffered from a syphilitic psychosis may show psychopathic or neurotic behavior problems or conduct disorders depending on the age of the child when the parent developed the psychosis and to what extent the homelife was broken. If the child also has congenital syphilis, this is an additional factor as the need for anti-luetic treatment alone may cause conduct disorders in children. Of course, if the syphilis has involved the central nervous system in the child, one must also consider the possibility of juvenile paresis. In general, except in those cases where the home has been destroyed early in the childhood of the parent, the behavior problems in children of this group are more superficial and will respond to proper environmental adjustments and sympathetic handling.

Children of alcoholic parents usually show superficial conduct disorders due to the unfavorable home. The children tend to run away from home and are involved secondarily in other forms of associated delinquency such as the necessary stealing, truancy, and association with unsuitable companions. Neurotic factors occur due to the feelings of guilt and inferiority that result from the disgraceful behavior of the parent, the resultant lowering of the social standards, and the intimidating treatment of the child when the parent is drunk or psychotic. Inferior children will suffer more because of their greater need of a sympathetic parent. Such homes usually have one devoted parent, which is usually the mother. Therefore, psychopathic behavior disorders are not common.

Children of criminal parents may develop all of the same types of behavior problems that children of psychotic parents do, except that schizophrenia or constitutional schizoid deviates or cases of *folie à deux* are not observed in this group of cases. In many cases the criminal parent is also psychopathic, alcoholic, or intellectually inferior, so that the disturbance to the family life is something more than that incident to the actual criminal episode which has led to imprisonment. Frequently defective children are neglected or misused and appear more retarded than they need to, or they develo neurotic reaction or hyperkinetic behavior. One child was so seriously neglected during the period her father was in prison that i took several years to overcome the nutritional deprivation, and th associated retardation was followed by a period of hyperkinesis, aggression, and antagonism to the family circle. Psychopathic disorders occur in children deprived of homelife and parental care in the early years. Neurotic behavior problems occur in the same circumstances as they occur in families with psychotic parents. Conduct disorders are common when the home supervision or the association with criminal persons are conducive to delinquency. Distortions in identification processes may occur in a boy whose father is engaged in criminal behavior at the time the boy is developing his identification with the father. In the case reported, that father went to the penitentiary for burglary when the boy was five years old. When the father returned to the home three years later, the conflict between the boy and his father resulted in daily episodes of distressing emotional outbursts in the boy in which he expressed all his ambivalence towards the father and himself. Each one saw in the other his own problems. His stealing has become compulsive. A boy whose father was killed by fellow gangsters when the boy was four years old also showed strong identification processes with this father which were enhanced by the mother and later by a stepfather who was abusive to the boy. He stole if he was let out of the house, and showed neurotic infantile behavior in the home.

Children's Theories Concerning Mental Illnesses

This opportunity may be used to find out what children think of the etiology and nature of mental illnesses.

Augustine (Case 1), who was a schizophrenic child of eleven, at one time had considerable insight into her own and her mother's illness. She said they were "born that way." She also said she did not have very good care, which was true; although the mother was devoted to her, the father had deserted and the family suffered from poverty, deprivation, and seclusion, especially as colored children whom the mother would not allow to play with any other children. She also said, "Or if your mother had imaginations."

implying that a child might develop imaginations under such circumstances.

Jerome (Case 2), a 13-year-old schizoid boy, claimed that his mother got sick because he drove her mad with his nervousness which in turn he felt was due to his physical defects and the fact that he was a "sick man." He also claimed that abuse from his father made his mother sick. These were all things that he had heard from others.

Alexander (Case 12), a 14-year-old boy, claimed that his father was all right until he got hit over the head with the bat. Alexander also identifies himself with his father and thought he might be crazy too, as his father was. He said he had fallen on his head many times. He also said that some say the wife is to blame when husbands get sick, but he thinks his mother was good to his father. He suggests that bad companions led his father astray. These last two theories are things that he has heard.

Rubin (Case 15), a twelve-year-old boy, said that to be mentally sick means:

> . . . . to be nuts, to go crazy. You get mixed up and then you get crazy. Some people are born that way or maybe they fall on their heads when they are babies. They have to be put away or maybe they kill somebody.

Harold (Case 24), an eight-year-old boy, never knew his mother except when she was mentally sick. He realized her condition and its effect upon the homelife. He says:

> She was sick in her mind. She was like that a long time. Before, she was nice and all right but I don't remember when that was. I want her home because I like her, but I want her in the hospital when she is sick because at home she can get more sicker.

William (Case 26), a 10-year-old defective boy, had been spared none of the distressing experiences connected with his mother's mental illness. He said she was "nuts" and "crazy" and that she yelled at him and his brother and father, and she tried to kill him and tried to kill herself. He said that he hated her. Then he told us that she was really his stepmother. He also told about a little brother who was "her little brat" and who had been put away, just as she has been put away, for cursing. Cursing and unjustified aggression seem to be the child's chief conception of insanity. He rejected the insane mother by calling her a stepmother and, when asked about this, admitted that he knew she was his mother but he dreamt that his real mother died and this was a stepmother and that, anyway, he had told us a lot of lies. His fantasied little brother was indubitably the part of himself that was loyal to this insane mother or that belonged to her.

James (Case 36), a seven-year-old boy said that the state hospital came after his father because of

> . . . . his head—his brain—because he cursed. He used to hit me and cursed at my mother and she tried to stop him but he cursed more and hit me for nothing so the hospital came out for him. He got gassed in the war. Then when he cursed the gas got started up. I don't know which way. He does the cursing because he was sick in the head. I used to curse him right back. I thought it was fun. But I don't do it any more. I though it was fun. Now I see it ain't since my father went away. I'm a little bit nervous because my father was nervous. I'm named after my father.

His concept of the cause of mental disease was not unlike William's. He, too, believed it was due to cursing and unwarranted aggression. But he had also heard that his father was gassed in the war and he took this very literally. He believed that the gas was in the head and "just gets started up" when his father curses. He thus has a very vivid concept of curse words igniting some process in the brain. He believed that he might follow the same course since he was his father's son, especially as he had the same name, and because he cursed his father back when his father cursed him.

Harold (Case 35), a 13-year-old boy, had a father with general paresis and had syphilis himself. He said, "I am dumb in school. I got the what-you-may-call-it from my father." He said that his father was in the hospital because of a disease he got from women and the whole family has the disease from him. He said his school work has become too hard and he might as well quit. He had a strong sense of inferiority and guilt.

Mary (Case 40), was a 10-year-old girl with a mother who had an alcoholic psychosis. Mary said:

> I am not happy at home. My mother gets drunk on holidays and my sister's birthday, every Christmas and before Christmas. She drinks whiskey. My father don't drink so much. He gets drunk sometimes Saturdays and Wednesdays. My mother yells. She talks to herself and talks to the walls. She curses. I run out because if she gets very drunk she kicks me and beats me. I don't like school because the kids tease me. They say, "Mary isn't smart and her mother gets drunk." A mother should mind the children by taking good care of them, by not hitting them. A mother isn't supposed to drink and she is not supposed to talk to the wall.

It seems that it is not possible for a child to avoid feeling the sense of guilt and inferiority which is imposed on him by a psychotic mother. Again, the psychosis is defined in terms of aggressive acts against the child, swearing and talking, and by its influence on the child. In this case the inference is that Mary's dumbness is in some way related to the mother's drunkenness.

Edward (Case 60), was a 10-year-old boy whose mother committed suicide when he was an infant. He believed that she killed herself because she knew he was going to be bad, and that he had to be bad because he was her child. He says:

> I know my mother must have done something bad. She must have gotten something in her bad. She killed herself. I know it is bad to kill yourself. She had St. Vitus's dance. You get it in your head and shake all over. I had it too. I used to curse a lot but I quit it. It was bad. I sometimes think it was my fault and sometimes the St. Vitus's dance that made her do it. They said it was because she knew I would grow and get big and she didn't know if I would be bad or not. She must have known that I would be bad. I got the St. Vitus's dance from being bad too. I went to the movies when I wasn't supposed to and saw a picture of a mummy and went home and dreamt about it and woke up scared and had the St. Vitus's dance.

This child had almost hopelessly confused all his own and his mother's supposed wickedness. He believed that she committed suicide because she knew he was going to be bad; she was bad because she committed suicide; she must have been bad to get the St. Vitus's dance by being bad. He also confessed that he cursed, which shows he was bad and may have accounted for the St. Vitus's dance he says he once had, and also explained the badness which the mother foresaw when she killed herself.

In general we find that the children, especially the younger ones, have a very objective attitude towards mental illness. It has none of the mystery for them that it has for adults. They believe it is the result of violence and badness. Schilder and Weschsler (26) have shown that in studying children's concepts of death they found that children believe only in a violent death. Neither does death hold any mystery for them. They do not believe in immortality until they are taught by their elders. Their understanding of mental illnesses is in the same category. The majority believe that people become insane from blows on the head, or falling on the head, or being dropped when they are little. Some children believe that people are born that way, but these are the older children. One boy, who heard that his father was gassed in the war, took the explanation very literally and believed that he still had the gas in his head and that he ignited it by cursing. According to children, the two essential factors in mental illness are unwarranted aggression against the child, cursing and using bad words, or talking wild. It is a very striking thing to what extent the cursing or improper use of words or language figures in mental illnesses, in the opinion of children. They believe it is the mental illness; they also believe it causes the mental illness. One boy believed that he was a little bit nervous and liable to insanity because he cursed his father right back when his father cursed him in the height of his mental illness. In view of the fact that motor action and language are indeed the most objective evidences of the function of the brain, it is quite appropriate that the child defines mental illness in terms of these two functions. Children are also very objective about syphilis and alcohol when they play a part in the psychosis. Children also feel that their own badness, such as cursing, aggression, or looking at aggressive moving pictures, may be the cause of mental illness in the parent. They are quick to identify their behavior, especially cursing or aggression, with the psychotic behavior of the parent and, therefore, think themselves liable to the mental breakdown like the parent.

II. CONCLUSIONS

Sixty children who were brought to the Children's Observation Ward of the Psychiatric Division of Bellevue Hospital for observation of all kinds of behavior problems, and who had a psychotic parent or criminal parent with an institutional record, are reported. Evidence for constitutional factors or hereditary factors are present in a small number of the children of schizophrenic parents. One child developed schizophrenia almost concurrently with the mother. There seems to be a type of schizoid personality deviate which may be due to constitutional factors. Behavior problems arise from the effects of the loss of the psychotic or criminal parent, the broken home, the unsuitable treatment of the child by the parents, or disturbance in parent-child relationships, especially when they occur in the critical periods of the development of the personality. Mental and emotional retardation occur in children who are confined with defective or schizophrenic parents, and are deprived of the normal environmental stimuli for growth, especially language development, in the early years. Psychopathic behavior problems develop in children who have been deprived of the normal homelife, of parent-child relationship, or where the homelife and parent-child relationships are broken in the first five or six years, before the personality, including the super-ego, has developed. Neurotic behavior problems arise in children who have been deprived of part but not all of the normal homelife and parent-child relationships, and who are forced to struggle with exaggerated feelings of inferiority, guilt, insecurity, and anxiety. Conduct disorders occur in children who are forced to run away from an unfavorable home, and must take part in associated delinquencies such as stealing and truancy. In general, there are more behavior problems in children of psychotic mothers than of psychotic fathers, because the mother is more essential to the homelife and personality development of the child. However, when the psychosis or criminal behavior in a father destroys the integrity of the home, the children may suffer through the secondary loss of the mother. There is, however, one group of boys who show a serious behavior disturbance as a result of a psychosis in the father. These are the boys who develop distorted identification processes in connection with the father when the father develops and reacts to paranoid delusions, especially against the mother, in the early years of the boy's life when he would be normally identifying himself with the father and passing through the Oedipus stage. Such boy's behavior closely patterns the father's psychosis, but is associated with a severe ambivalent attitude towards the father, mother, and self, with marked emotional instability and serious behavior difficulties. Similar disturbances in personality may occur in a boy whose father shows criminal behavior and who is caught, imprisoned, or killed at this same age period in the child.

In general, the behavior difficulties in the children become most serious in early puberty, although the disorder in the parent occurs earlier in the life history of the child.

Of the 60 families studied there were 198 living children. Besides the 60 children included in this report, there are recorded behavior difficulties in 50 siblings, making a total of 100 behavior difficulties, or 51 per cent.

This opportunity is used to consider children's concepts of mental illness. Their attitude is very objective. In general, they believe it is due to violence, especially blows on the head, and they believe that it is characterized by unwarranted aggression against the child and by cursing.

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DOMINATION AND INTEGRATION IN THE SOCIAL BEHAVIOR OF YOUNG CHILDREN IN AN EXPERIMENTAL PLAY SITUATION 343

By HAROLD H. ANDERSON

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DOMINATION AND INTEGRATION IN THE SOCIAL BEHAVIOR OF YOUNG CHILDREN IN AN EXPERIMENTAL PLAY SITUATION* **

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**From the Iowa Child Welfare Research Station, University of Iowa, Iowa City, Iowa.

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1. THEORETICAL CONSIDERATIONS

The present report on domination and integrative behavior in children of preschool age is both a continuation and an elaboration of a preliminary report previously made (3). In that report the writer gave some of the theoretical considerations underlying the concepts of social behavior here being investigated.

Briefly, integrative behavior is a growth phenomenon. Growth is regarded as a change in structure or function of the organism. Growth is a voluntary abandoning of status, which is another way of describing change or learning. Growth or integrative behavior is characterized by a *yielding* of the existing structure or function for a new structure or function that is in the process of becoming. Yielding is a spontaneous response to difference. It is a response of a secure person, of one who is free to abandon himself to something new and different.

Growth is to be observed and measured along a theoretical continuum; it is not an all or none phenomenon; it is relative. Growth is process; it is dynamic, not static. The cross-sections of this process which an experimenter observes and records as behavior are at the moment of recording already historical components of the individual's past experience. Life moves on as a process of responding between the individual and his environment. Response is by definition change: the individual is different for having responded. Growth is creative; it is characterized by the emergence of originals, originals in structure or function.

Actual Versus Ideal Growth. The controlling or regulating factors of growth lie not so much within the organism as such or in the environment as such, as they lie in the chance constellation of forces that are responding or relating between the individual and his environment in the immediate, momentary and changing situation. Theoretically, the individual grows at his optimum or he grows at something less than he might. This is true whether one considers physical growth, healthful body functioning, mental growth, or personality development.

Thus physicians say that practically all persons are somewhat less healthy than they might be, that structurally and functionally they might be more healthy than they are if certain conditions in the organism or in the environment or in the dynamic relating of the two were changed. If the child's adenoids were removed, if he had better food, or if he got more sleep or more exercise he might be, the physicians say, in better condition or he might be healthier than he is.

Recent research in mental development, which has shown that nursery school experience can consistently raise the IQ's of a nursery school group, indicates that "we may all, in fact, be somewhat mentally retarded."

Likewise in the field of personality development and mental hygiene with which this study is more particularly concerned it can be said that most persons are functioning at something less than their maximum potential.

> Mental health . . . is plainly a stage of perfection that is never actually reached by anyone. Just as there probably does not exist a completely healthy, entirely normal[1] physical organism made up of absolutely healthy parts, so those gifted with the best of mental health present flaws visible in greater or less degree, commonly called "peculiarities" or "difficulty spots." Indeed a state of complete mental health could not be defined or described" (6, p. 3).

It is not possible to define optimum growth nor is it necessary in order to study growth. What one always studies under physical, mental, or personality growth is the something-less-than growth at its best, the responding at a point somewhat short of the upper theoretical terminus of the continuum between atrophy, stagnation, or disintegration at one end and optimum growth at the other.

Growth or learning occurs only through the confronting of differences; growth and learning are phenomena of yielding to differences in which the organism emerges with a changing structure or function.

Integrative Behavior. Personality growth or integrative behavior is a process of change in structure or function that results from increasingly complex relations with persons different from one's self. Personality growth occurs when the individual is able to seek and to discover or define common purposes in activities that are mutually satisfying to himself and to those in his environment. Personality growth or development is directly proportional to the spontaneity (security or absence of fear) with which a person responds to his environment.

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[1] Note: The term "normal" does not mean the same thing to a physician that it means to a statistician. Normal, as commonly used by a physician and as quoted above, means ideal or standard, not average or according to norms. The "normal" or average person has one or more remediable physical or medical deficiencies.

Integrative behavior is flexible, dynamic, yielding, spontaneous; it shows no fear of abandoning status, no fear of change. An integrating person seeks and finds common purposes with another; he expends energy with another, not against another.

Integrative behavior in one person induces integrative behavior in another. An integrating person accepts another *as he is,* thus contributing to the other's security, and thus making it possible for the other person to be spontaneous, to be himself. There is no greater psychological security than for one to be accepted as he is. In a child guidance clinic the integrative relationship is called rapport.[2]

Dominative Behavior. Dominative behavior on the contrary is rigid, fixed, static. A dominating person has his mind made up, has his goals or desires predetermined. He does not yield to differences; he is not abandoning his status; he is trying to preserve status. He is not seeking a better understanding of another nor is he trying to achieve a redefining of desires, values, or objectives in order to discover a lower common denominator of differences. He is expending energy against another. He is not reducing conflict, he is either maintaining or increasing the conflict of differences.

---

[2] Compare a statement by a psychiatrist describing a relationship which he calls "specific and unique." Frederick H. Allen, writing on *The Child as the Therapist Sees Him* says: "First, I might indicate the nature of the therapeutic relation with a child. . . .

"This is a specific and unique relation established with a child who is presenting some difficulties in his behavior. Usually he is brought and has had little to say as to whether this is a thing he wants to do. From the beginning the therapist tries to give the child the feeling that here he is taken just as he is. He is accepted as a child, not as a problem, with no attempt to mould him into anything other than what he can be at the moment. . . .

"The therapist is an unusual adult in the child's experience because the child finds himself accepted by him exactly as he is. There is no other person present. . . . There is no attempt to make him into something else, nor to change his pattern of behavior. The child is neither scolded nor blamed, nor is he told what to do . . ." (1, p. 3-4).

In other words the therapeutic relation has an absence of domination and an abundance of integration. The psychiatrist is seeking a common purpose with the child, is expending energy with the child, not against him. Integrative behavior of the psychiatrist (accepting the child as he is, yielding to differences) induces integrative behavior in the child. When the induction works, psychiatrists call it rapport.

Domination seeks first not self-abandoning, but self-preservation. It resists change. However justified the individual may be in preserving the status quo, domination is decidedly less than growth at its optimum.

Resistance and Submission. Domination tends to induce resistance. But resistance is itself dominative behavior. If the relative strength is too great, domination will produce submission.

Resistance and submission are both fear responses; they show fear of losing status quo. Submission is not to be confused with yielding. Submission is a coerced response of fear; it is not spontaneous. Yielding is a spontaneous response by an individual so unconcerned with his own security that he is not afraid to change or give up his present status. Resistance and submission are responses to domination; they are both something-less-than spontaneous, and both something-less-than expressions of growth.

Domination and integration are different and unrelated techniques of responding to differences. Domination can obstruct integrative behavior where the intolerance of difference and the balance of power are both too great. Domination, being the negation of growth, cannot induce integrative behavior. Integrative behavior creates no situation in which another person feels the need to maintain or protect his status; integration thus does not induce domination.

There is probably no situation in which the responding process between an individual and his environment is characterized uniquely by domination or by integration; the phenomena of relating are too complex. There are many momentary situations, however, in which one of these types of responding can be said to be preponderant, in which energy is spent with another or is spent against him, in which efforts are made to maintain or increase conflict of differences or to reduce conflict of differences.

The present study does not include data on submission. It does include data on domination and resistance to domination, and on integrative behavior or the expenditure of energy in the direction of common purposes.

Ascendant Behavior. The comparison of dominative and integrative behavior with ascendant behavior is only incidental to the present study. The term ascendant behavior as used in the psychological literature and as defined in reports of experimental research makes no distinctions between dominative and integrative behavior. An example can sufficiently illustrate this point.

The Jack study of ascendant behavior in preschool children (4, p. 9-65) is a carefully planned and meticulously executed piece of research. Jack undertook to adapt the Allport concepts of ascendant behavior in adults (2) to the levels of preschool children and by experimental methods to study the behavior of young children which seemed to fit those concepts. But according to the Jack definitions of ascendant behavior the following activities of preschool children are recorded as ascendant behavior and are assigned equal score values.

> 1. A child reaches across the sand table and snatches a toy out of the hand of a companion and plays with it himself.
>
> 2. A child asks his companion if he may play with a toy if he will give it back in just a minute.

According to the concepts of the writer, the first example is dominative behavior; the second is integrative behavior. The first is frowned upon in nursery schools; the second is encouraged.

The writer maintains that the distinction between dominative and integrative behavior is important for a concept of personality growth. Moreover, dominative and integrative behavior can be differentiated experimentally and have in this study been reliably observed in preschool children. With this main difference in conceptual thinking, the writer in setting up the present study has drawn heavily upon the methods and procedures established by Jack.

2. TECHNIQUES AND PROCEDURE

Subjects. One hundred twenty-eight children of preschool age were studied. They constituted three groups as follows: 63 children enrolled in the preschool laboratories of the Iowa Child Welfare Research Station, State University of Iowa at Iowa City, Iowa; 34 orphanage children enrolled in the nursery school at the Iowa Soldiers' Orphans' Home in Davenport, Iowa; and 31 orphanage children not enrolled in nursery school used as a control group.

Table 1 gives the numbers of children in the respective groups observed at different times.

TABLE 1

	Observation			
Sex	June 1935	August 1935	February 1936	June 1936
	Iowa City nursery school group			
Boys	34		9	
Girls	19		12	
Total	53		21	
	Orphanage nursery school group			
Boys	10	8	12	11
Girls	11	9	10	11
Total	21	17	22	22
	Orphanage control group			
Boys	7	7	4	14
Girls	8	6	9	9
Total	15	13	13	23
	All groups			
Boys	51	15	25	25
Girls	38	15	31	20
Total	89	30	56	45

Table 2 gives the mean ages and age ranges for the respective groups as of June 1, 1935, IQ's, and IQ ranges for the tests nearest that date.

TABLE 2

	Age in months		IQ	
Group	Mean	Range	Mean	Range
Iowa City nursery school	47.9	30 to 66	123.0	80.0 to 177
Orphanage nursery school	49.8	28 to 78	88.5	67.5 to 125
Orphanage control	57.2	28 to 79	82.3	57.0 to 107

The Iowa City children are for the most part normal or superior children coming from families that represent a cross-section of the population of a town of fifteen thousand population. A large proportion of the children, however, come from families of the university staff or of graduate students. Most of the Iowa City children had attended nursery school one or two years.

The nursery school at the orphanage was an innovation. Set up as an experimental or research nursery school in a building especially designed for its purpose, the orphanage nursery school had been in operation about eight months when the first observations were taken. According to the reports of the teachers as well as according to preliminary reports of other studies, the nursery school children seemed to be having considerable difficulty in adapting themselves to the facilities of the nursery school. According to later observations it has seemed to take the nursery school children about a year to begin to respond to a nursery school as most children do.

When the nursery school was established, each child enrolled was paired for chronological age, mental age, and time at the orphanage with a child in the control group. They were not, however, paired on the basis of any personality observations or measurements.

Procedure.[3] Children were taken in pairs to the testing room where they were allowed to play for five minutes. In the room was a sand box on a low table. In the sand box were a toy sand pail, shovel, sieve, two automobiles, and three rubber toy animals always arranged in the same position when the children arrived. As he led the children into the room, the experimenter said, "Here are some toys for you to play with until I come back and get you. We will keep them in the sand box all the time, but you may play with anything you want to" (4, p. 16).

With a few exceptions each child was paired at random with five other children of his own group. In addition to the pairings in his own group the orphanage nursery school children and the orphanage control group children were each paired at random with five other children of the other group. The orphanage nursery school children were not strangers to those in the control group, for outside of nursery school hours they lived together in the same cottages. In order to avoid the possibility of wearing off the novelty of the situation and thus losing interest, an attempt was made not to use any one child more than twice in the same day. The collection of data for each of the four different observation periods during the year required from ten days to a month.

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[3] The writer is grateful to Miss Marjorie L. Page for her cooperation which determined in part the adoption of the Jack procedure for this study. The nature of this cooperation is explained in the section reporting data on ascendant behavior. Observations for June and August, 1935, were made on children paired by Miss Page for her study of the modification of ascendant behavior in preschool children (5).

Inasmuch as each child was paired with five or more children, it was considered advisable to determine whether or not there would be any relationship between a child's score in one pairing and his scores in other pairings. A correlation was made for all possible combinations of the scores for each child—$n(n-1)$ combinations for n scores. The correlation obtained was .12±.04. This small correlation coefficient was not considered high enough to justify the extra work required to correct for the slight tendency to obtain the same score. The change in results would be almost negligible.

Method of Scoring. The following observation blank was used:

Anderson
Form 1
May, 1936

Date________________
Group________________
Observer _______________

RECORD OF DOMINATION—INTEGRATIVE BEHAVIOR
Iowa Child Welfare Research Station

P
Subject *A* C
P
Subject *B* C

	A	*B*
1. Verbal demands to secure materials		
2. Forceful attempts to secure materials		
3. Succeeds in securing materials		
4. Defends, snatches back materials		
5. Verbal commands to direct c's behavior		
6. Forceful attempts to direct behavior		
7. Succeeds in directing behavior		
8. Criticizes, reproves companion		

9. Shows common purpose by word or action ________
10. Verbal request or suggestion to direct c's behavior or secure material ________
11. Complies with request or suggestion ________
12. Sets pattern including gesture which companion imitates ________

Dom. Scores (1-8) ________
Integ. Scores (9-12 plus c-11) ________

Definitions. Through preliminary observations the following list of definitions and illustrations was set up as a guide for the observers:[4]

1. Verbal demands to secure materials.

Demands toy or play materials (including the right to use the sand in the box or in a certain part of the box).

2. Forceful attempts to secure materials.

Attempts to get toy or play materials (including certain position at or certain portion of the sand box) from companion. Includes attempts to take material even when companion has laid it down close to him, but is obviously retaining it in his immediate possession. It includes, also, reaching for material even when the hands do not come into actual contact with it before it is snatched away. (Forceful accompaniments to attempts to get materials or to enforce other demands, as hitting and kicking, are not counted again as separate items of behavior.) (When 1 and 2 occur simultaneously, only item 2 is counted.)

3. Succeeds in securing materials from companion's possession by demands or by force.

4. Defends, snatches back materials taken from his possession.

Holds on to toy he has and resists attempts to take it; snatches it back from companion who has taken it from him. Item 4 is counted even when the companion ultimately succeeds in getting the toy, but is counted only once for each attempt to take material from a child.

Defense is construed here to involve a command, threat, or the use of force.

---

[4] For a more detailed contrast of dominative and integrative behavior with ascendant behavior, compare the definitions given here with those given for ascendant behavior by Jack (4, p. 17-18).

5. Verbal commands to direct companion's behavior.

Includes resistance to companion's attempts to participate in child's activity.

One child forbids another.

6. Forceful attempts to direct behavior.

Forceful attempts usually include contact with companion's person or materials. Child *A* saying, "Look what I made" is not credited with forceful attempt but with item 10, verbal suggestion to direct behavior. However, if the companion pays no attention and the child holds the object in his companion's line of vision, this is regarded as a forceful attempt to direct behavior.

Throwing sand or other material at companion; use of force of any kind about the person of companion. (When 5 and 6 occur simultaneously, only item 6 is counted.)

7. Succeeds in directing behavior by commands or force.

(Success in items 5 or 6.)

8. Criticizes, reproves, or places companion in a disadvantageous comparison.

Includes "Bum," "Dumbbell," and other uncomplimentary names.

This behavior implies an attack against the status of a companion and includes, therefore, any implication of blame. "Criticizes" implies negative criticism and does not include criticism that is constructive or that attempts to evaluate a product or activity independently of the companion associated at the moment with it.

Behavior in which child places companion in disadvantageous comparison with self is not construed as evidence that child is seeking harmony or common purpose, e.g., "I have a bigger house than yours," "I saw a bigger elephant than you did." Such remarks when obviously stated not to compare houses or elephants so much as to compare child *A* with child *B* are construed as dominating and checked under item 8.

9. Shows common purpose by word or action.

Includes attempts to cooperate; attempts to share or to participate in companion's activity, e.g., "Now I'll do this": also acquiescence to such attempts on the part of companion. Nonverbal behavior in the nature of taking turns. Such statements as, "Let's cover him up," when the companion is already engaged in the suggested activity; instances when the child may help his companion with something in order to show how to do it, although there is no verbal accompaniment to indicate that this is the reason. Without overt evidence of domination the use of "We" presumes integrative behavior.

Gratuitous behavior; volunteering services; giving materials. "This is the way I do it" (am going to do it).

Acquiescence in or overt recognition of, or response to, cooperative behavior, volunteered services or donated materials.

10. Verbal request or suggestion to direct companion's behavior or to secure materials.

Child suggests activity for his companion, either individual or cooperative. This includes any statement for companion's activity beginning with "Let's" or suggestion in form of question as "Shall we." (Note under 9 that "Let's" indicates common purpose when companion is himself already engaged in the activity; the change in behavior is then in the child himself. In 10 "Let's" implies that the suggested change in behavior is primarily in the companion, the child himself already having the idea.)

Includes apportionment of toys to companion with or without a verbal accompaniment (such statements as, "Do you want me to pour some sand into your truck?").

Such vocalization as "E-e-e-e" when obviously directing companion to stop doing something is also included.

Includes all questions: e.g., "When will you be through with the shovel?" "What are you making?" "Did you hear that noise?" "What did you say?" "Huh?" "What?"

Includes all remarks calling child's attention to something: e.g., "Look at this," "Watch me." (These are construed suggestions unless accompanied by evidence of force or threat.)

Child asks for or suggests that he be given toy or play materials (including the right to use the sand in the box or in a certain part of the box); includes any statement or desire for something in the possession of companion and modification of such statements as: "Can I have it, if I give it back in just a moment?"

Unrelated conversation, not questions or answers: e.g., "I went to the circus," "I've got a blue dress."

11. Complies with request or suggestion.

Includes answers, gestures, or overt responses to any question; includes repetition of an original question when companion asked, e.g., "What did you say?"

Repetition of a remark when companion asks, "What did you say?" Repetition of an act when companion says, "What did you do?" or "Do that again."

12. Sets pattern including gesture which companion imitates.

This is counted only when there is repetition of the speech or other behavior of the companion, the pattern being repeated in sufficient entirety to be plainly recognizable. Only one repetition of the same pattern is counted. (It does not include joining companion with a song or chanted phrase, which would be checked as 9.)

Example. The sand table jiggled. One child stooped down to look at underside of table; companion did same. *Example.* Child goes to window and looks out; companion does same.

Reliability of Observers. In the preliminary report of this study of dominative and integrative behavior (3) the reliability of observers was computed separately for each item of behavior on the observation blank. Preliminary observations had been taken on 33 pairs of children at Iowa City and on 20 pairs of children at the orphanage. It was obvious to the observers that the total amount of activity at Iowa City was so much greater than at the orphanage and the interplay so much more complex and difficult to observe that reliability was computed separately for Iowa City and for orphanage data. Percentage of agreement was computed by dividing twice the number of identical tallies of items of behavior by the sum of the tallies of both observers. Percentage of agreement for the total number of items computed item by item for Iowa City was 82 and for the orphanage 88 as given in the preliminary report.

Since it was later planned not to analyze the responses item by item, the reliability data were recomputed to give correlation coefficients between observers for dominative behavior and for integrative behavior.

Data reported in this study were gathered by two different observers.[5] Reliability of the second observer was made on 20 pairings. Table 3 gives the coefficients of reliability and the numbers of pairings on which the coefficients were obtained.

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[5] The writer is indebted to Mr. Hubert Coffey and Misses Janet Redfield and Helene Heye, research assistants. Mr. Coffey established reliability of his observations with the writer and gathered the data reported for June and August, 1935. Data for February and June, 1936, were obtained by Miss Redfield who established reliability of her observations with Miss Heye.

TABLE 3

Observers	Pairings	Domination	Integration	Total activity
Iowa City nursery school group				
A and *B*	33	.90±.02*	.93±.01	.94±.01
Orphanage nursery school group				
A and *B*	20	.99±.00	.93±.01	.98±.00
Iowa City nursery school group and orphanage nursery school group combined				
C and *D*	10	.88±.03	.97±.01	.93±.01

*Since there is a score for each child, the probable errors are based on numbers equal to twice the number of pairings.

Reliability of Order of Pairings. In order to determine the effect of order of pairing on domination and integration scores, comparisons were made between the scores obtained in the first pairings and scores obtained on the fifth pairings of orphanage children. There was a tendency for control group children to show lower domination scores on the fifth trial than they showed on the first. This difference was not significant. None of the other differences approached significance.

Teachers' Ratings of Dominative and Integrative Behavior. As a means of validating the experimental findings of this study the teachers of the orphanage nursery school were asked to rate each child on a blank specially devised for this study. Three teachers, referred to as *A*, *B*, and *C*, rated each child independently. The ratings of each teacher were then correlated with those of the other teachers for reliability of the ratings. The mean ratings for each child were correlated with the child's mean domination and integration scores for his pairings made one week previously.

The following instructions and rating blank were used:

Anderson
Form 2

RATING SCALE OF DOMINATIVE AND INTEGRATIVE BEHAVIOR

Iowa Child Welfare Research Station

Definitions of Terms

Dominative behavior is behavior in which one person uses force or attempts to use force (1) to secure play materials which he wants from a companion; (2) to direct the behavior of the companion; or (3) to defend one's own personal or property rights in the play situation. It includes also (4) any sort of intolerance of a companion, e.g., the use of blame, reproof, ridicule, or shame.

Integrative behavior is behavior which shows respect for other individuals, for their desires or purposes in play activity and for their personal and property rights. In case of a difference in plans or purposes in which each child has a right to his own choice or opinion, the one using integrative behavior may make requests or may try to persuade but he leaves the decision or final choice to the other person without attempting to use force. Requests, suggestions, asking questions are integrative in contrast with commands which are authoritative, presumptive, and dominative.

Directions for Raters

Imagine that the child who is being rated has been paired on different occasions with each of the other children of his group in an experimental play situation. Each pair of children has been left in the experimental playroom for five minutes and told that they might play there until the experimenter returned. In the play room was a small sand box on a low table. In the sand box were a small pail, shovel, sieve, two automobiles, and three rubber animals.

Please rate these children according to the *frequency* of behavior which you would expect.

Make these ratings by comparing each child with the entire group. For example, a child who attempts to use force to secure play materials from a companion in a decidedly greater number of situations than the average of his group is scored 5. The child who is typical of the average in the frequency of one pattern of behavior is scored 3. The child who is noticeably lacking in this type of behavior is scored 1.

Anderson
Form 2

RATING SCALE FOR DOMINATIVE AND INTEGRATIVE BEHAVIOR

Iowa Child Welfare Research Station

Name ———————————Group ————————————
Date ————————————Rater ————————————

1 = decidedly less frequent than the average for the group

2 = somewhat less frequent than the average for the group
3 = frequency about equal to the average for the group
4 = somewhat more frequent than the average for the group
5 = decidedly more frequent than the average for the group

1. Uses or attempts to use force to secure materials from his companion

1 2 3 4 5

2. Uses force or commands to direct behavior of companion

1 2 3 4 5

3. Uses force or commands to defend his personal or property rights in the play situation

1 2 3 4 5

4. Criticizes, blames or reproves companion for accidents or for behavior or achievements which do not meet his approval

1 2 3 4 5

5. Respects personal and property rights of others; is willing to take turns

1 2 3 4 5

6. Initiates cooperative activity in which he may permit or even help his companion to carry out ideas of his (the companion's) own

1 2 3 4 5

7. Complies with reasonable requests of companion

1 2 3 4 5

8. Shares materials with companion without loss of personal or property rights

1 2 3 4 5

Table 4 shows the coefficients of correlation for reliability of the teachers' ratings:

TABLE 4

Teachers	Number	Domination	Integration
A and *B*	26	.64±.08	.82±.04
A and *C*	26	.65±.08	.94±.02
B and *C*	26	.94±.02	.92±.02

Domination rating scores were computed from items 1 to 4 and for scores less than 3 on item 5. Integration rating scores were computed from scores of 3 or above for item 5 and for the scores on items 6 to 8 inclusive. Items 5 proved to be a split item in which a low score indicated that the child did not respect the rights of others; a high score meant that he did respect the rights of others and was willing to take turns. It is believed that this slight ambiguity which was not adequately covered in the directions to teachers accounts for the low correlation in domination scores between teacher *A* and the other teachers. For several children marginal notes on the rating blanks indicated that a teacher felt the child socially unresponsive. The corresponding ratings of teachers *B* and *C* ran consistently at score 1 for all items on the blanks of these unresponsive children. For some of these children given score 1 on each item by teachers *B* and *C*, teacher *A* gave score 3 on item 5, score 3 being neutral. These observed deviations are sufficient to disturb the correlation coefficients computed on such a small number of cases.

When the teachers' ratings were averaged and the mean rating scores correlated with each child's mean domination and mean integration scores the coefficients for domination were .72±.07, and for integration .49±.11. This means that the teachers are more able to judge dominative behavior than integrative behavior. It may mean also that the teachers are more conscious of misbehavior than they are of behavior, that they notice more the incidents of conflict than they do cooperative play. The question might be raised to what extent or in what proportion the teachers' contacts with the children might be in consequence primarily of a restraining nature.

The coefficient of correlation between teachers' ratings and observed dominative behavior is probably lower than it might be. The slight ambiguity in item 5 has probably somewhat reduced this coefficient.

Scoring. In the preliminary study domination scores were obtained from items 2, 5, and 8; integration scores included tallies for 9, 10, and 11 plus the companion's score on item 11. Because of the change in plan for analyzing the data so that the only differentiation is to be between dominative and integrative behavior, all the items of behavior can be used.

In this report domination scores include items 1 to 8 inclusive; integration scores include items 9 to 12 inclusive plus the companion's score for item 11. Including the companion's score for item 11 was an arbitrary matter justified on the assumption that the companion's compliance with a request or suggestion (item 10) was evidence of success in finding a common purpose in social interplay. A suggestion or request of such a nature or made in such a way as to enlist the cooperation of a companion was assumed to be worth more as an act of integrative behavior than a suggestion or request that was ignored or declined. Success would, therefore, be analogous to items 3 and 7 under domination which recorded success in forcing conformity.

A child's mean score for domination or for integration is the total number of tallies he received for the respective behavior for all pairings divided by the number of children with whom he was paired.

The present report will show higher domination scores than the preliminary report because all domination items are here included. The sum of domination and integration tallies includes then most of the social interplay that could be observed. During the actual observations the two main reasons for failure to record items were inarticulate or inaudible speech on the part of a child and the inability on the part of the observer to make some of the finer distinctions between commands and requests.

3. COMPARISON OF GROUPS

In the Iowa City group of nursery school children each child was paired with children from his own group. At the orphanage, however, as mentioned before, each nursery school child was paired not only with five children of his own group but with five children of the control group. Similarly, each child in the control group was paired with five members of the nursery school group. There were some exceptions to this general procedure due to illness. Thus there will be mean scores for Iowa City children and separate mean scores for orphanage nursery school children when paired respectively with nursery school and control children; and there will be separate mean scores for orphanage control children when paired respectively with nursery school orphans and with members of their own group.

Comparison of Domination and Integration in Iowa City and Orphanage Groups for June, 1935. The three groups show the mean scores for domination and integration in Table 5.

TABLE 5

Group	Scores	Mean	Probable error of mean
	Domination		
Iowa City nursery school	192	1.84	.12
Orphanage nursery school	137	3.81	.23
Orphanage control	81	1.78	.16
	Integration		
Iowa City nursery school	192	10.67	.44
Orphanage nursery school	163	5.63	.32
Orphanage control	95	6.19	.44

The differences between the means and their degree of significance follow in Table 6. The mean scores are shown graphically in Figure 1.

The orphanage nursery school children are significantly more dominating than either the Iowa City nursery school children or the orphanage control group. The orphanage control group has a mean dominative score slightly below that for the Iowa City children but the difference is not significant.

In integrative behavior, however, Iowa City children have mean scores almost 50 per cent above the mean scores for either or-

TABLE 6

Group*	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
	Domination			
Iowa City nursery school and orphanage nursery school	1.97	.38	5.19	100
Iowa City nursery school and orphanage control	.07	.30	.24	58
Orphanage nursery school and orphanage control	2.03	.42	4.87	100
	Integration			
Iowa City nursery school and orphanage nursery school	5.04	.97	5.80	100
IowaCity nursery school and orphanage control	4.48	.80	5.55	100
Orphanage nursery school and orphanage control	.56	.75	.54	71

*In this and in all following tabulations concerned with the significance of differences, the group underscored has the larger mean.

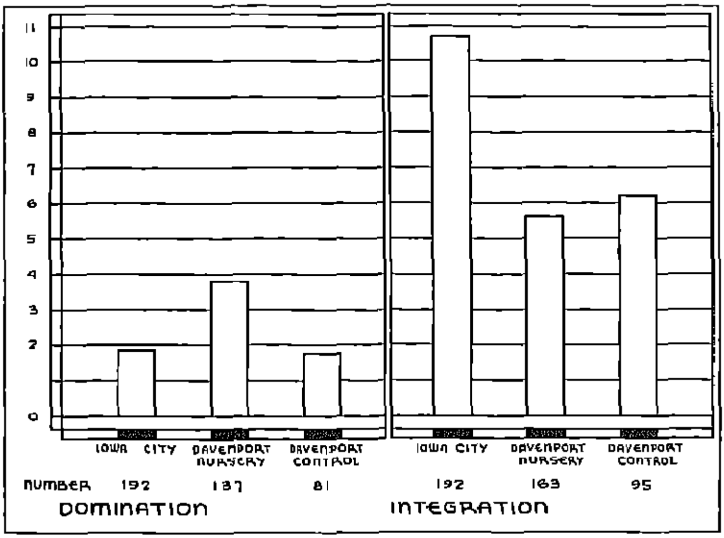

FIGURE 1

Mean Domination and Integration Scores for Iowa City Nursery School and Orphanage Groups for June, 1935 phanage group. Iowa City children are significantly superior to both orphanage groups in integrative behavior. The orphanage control group has an integration score slightly higher than the orphanage nursery school, but there are only 71 chances in 100 that there is a true difference.

Total Interactivity for June, 1935. The sum of the domination and integration scores for any child gives a fair indication of the child's total activity which involved the companion.

Preliminary observations made during the establishing of reliability of observers indicated that the Iowa City children were much more active than the orphanage children and the frequency and complexity of the interplay between the children was much greater in Iowa City. It can be safely said that many more items of behavior went unobserved or were omitted in the Iowa City group than occurred at the orphanage. The records for the total interactivity of the orphanage children, therefore, are more complete than for Iowa City. Table 7 shows for June, 1935, the mean scores for domination plus integrative behavior, i.e., the mean scores for total interactivity observed and recorded. The differences between mean scores, standard errors of the differences, and critical ratios are shown in Table 8.

The ratios of mean scores to each other may be seen graphically in Figure 2.

TABLE 7

Group	Pairings	Mean	Probable error of mean
Iowa City nursery school	243	12.19	.34
Orphanage nursery school	156	8.81	.31
Orphanage control	100	8.24	.52

It is seen that the Iowa City children are almost 50 per cent more interactive than either of the orphanage groups and that these differences are significant. The orphanage nursery school children are slightly more interactive than the orphanage control group but the difference is not significant.

Interpretation of Observations for June, 1935. Is it possible to evaluate these data in terms of the stated hypotheses for personality growth? Hypotheses are not only permissible; they are desirable for any scientific research. The important consideration is for the

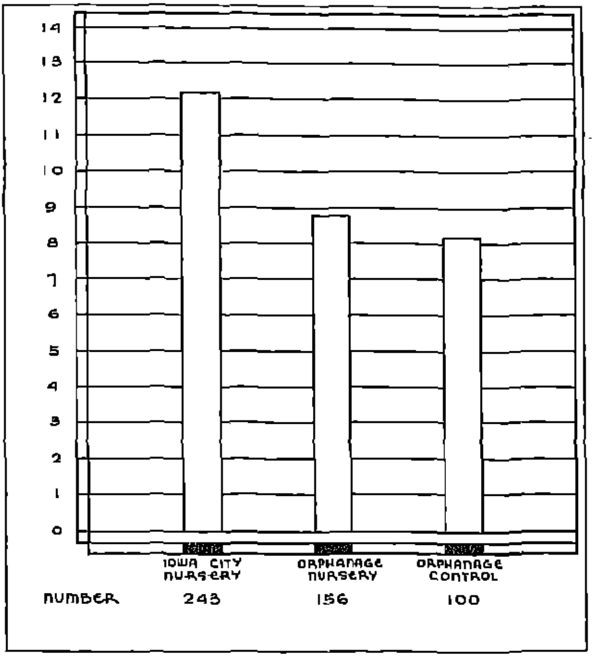

FIGURE 2

Mean Scores for Total Interactivity for Iowa City Nursery School and Orphanage Groups for June, 1935

TABLE 8

Group	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
Iowa City nursery school and orphanage nursery school	3.38	.76	4.42	100
Iowa City nursery school and orphanage control	3.95	.93	4.26	100
Orphanage nursery school and orphanage control	.57	.97	.28	61

scientific worker to make it clear when he is discussing hypotheses or theory and when he is presenting demonstrated facts. If this is accomplished it is relatively easy to keep one's conclusions within the data.

It is axiomatic that personality growth is desirable. It has been assumed that the most desirable growth is an expression of integrative behavior. It has been asserted here that growth can be observed and measured along a continuum with integrative behavior at one end and atrophy, inertness, shyness, timidity, fear, submission at the other end. In between these two extremes of most desirable and least desirable, i.e., behavior most expressive of growth and behavior least expressive of growth lies a large group of intermediate responses characterized by confusion, antagonisms, negativism, resistance, domination, and overt delinquencies. This overt negativistic dominative behavior is less desirable than integrative behavior but more desirable from the standpoint of personality development than the submissive, shy, timid, lethargic, unresponsive behavior.

The writer is not trying to oversimplify the concepts of personality or to spin theories too fine to be practical and useful. Some research is at hand to support the relationships outlined above as behavior scaled for its growth value. Wickman (7) reported several years ago that it was the concensus of judgment of representative mental hygienists and clinical workers cooperating in his study that the shy, timid, bashful child is a much more serious personality problem than the child who usually gets into "disciplinary" trouble.

From the data presented above for dominative and integrative behavior, the relationships of these three groups of young children can now be evaluated.

The Iowa City children hold a definite superiority. They show significantly higher total social interactivity than either of the orphanage groups. They are significantly superior to both orphanage groups in integrative behavior and significantly lower in dominative behavior than the orphanage nursery school group.

The orphanage nursery school group must be ranked definitely superior to the control group from the standpoint of their behavior, though their advantage rests on a rather shaky ground not unlike that found by the hunter without a license who discovered it less serious an offense to shoot a cow than a man. The orphanage nursery school children are not significantly different from the control group in total interactivity or in integrative behavior. Paradoxically they get their ranking above the control group for their significantly superior dominative scores on the assumption that it is more related to growth to be active than to be inactive.

The orphanage control group is significantly inferior to Iowa City children in integrative behavior and not significantly different from the orphanage nursery school children in the same behavior. Because of its low integrative scores, it gets little credit for low dominative scores since there are fewer signs of life in the control group than in the nursery school group.

Comparison of Groups with Scores Combined for June and August, 1935, and February, 1936. When all the scores for all the pairings for June and August, 1935, and February, 1936, are combined, the mean scores are those shown in Table 9 and illustrated in Figure 3.

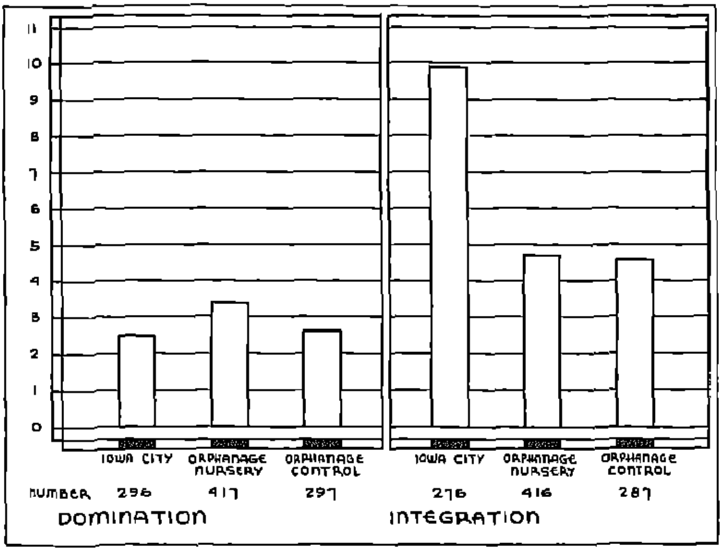

FIGURE 3

MEAN DOMINATION AND MEAN INTEGRATION SCORES BASED ON ALL PAIRINGS FOR JUNE AND AUGUST, 1935, AND FEBRUARY, 1936, FOR IOWA CITY NURSERY SCHOOL AND ORPHANAGE GROUPS

TABLE 9

Group	Scores	Mean	Probable error of mean
	Domination		
Iowa City nursery school	296	2.49	.12
Orphanage nursery school	417	3.36	.11
Orphanage control	297	2.59	.12
	Integration		
Iowa City nursery school	276	9.88	.34
Orphanage nursery school	416	4.74	.16
Orphanage control	287	4.64	.21

The differences between these means and their significance are given in Table 10.

TABLE 10

Group	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
	Domination			
Iowa City nursery school and orphanage nursery school	.87	.24	3.72	100
Iowa City nursery school and orphanage control	.10	.25	.47	68
Orphanage nursery school and orphanage control	.77	.23	3.31	100
	Integration			
Iowa City nursery school and orphanage nursery school	5.14	.54	9.59	100
Iowa City nursery school and orphanage control	5.24	.58	9.09	100
Orphanage nursery school and orphanage control	.10	.39	.25	60

It is obvious from the above tabulations that the combination of data from three observation periods has only confirmed the relationships between groups shown in the data for June, 1935.

Homogeneous and Cross-Pairings of Orphanage Children. Are the orphanage nursery school children more dominating when paired with each other than when paired with children from the control group? How do they also compare in integrative behavior? Table 11 gives the mean scores for different combinations of pairings. The

TABLE 11

Orphanage pairings	Pairings	Mean	Probable error of mean
	Domination		
Nursery school with nursery school	228	3.29	.14
Nursery school with control	89	2.80	.22
Control with nursery school	89	3.28	.20
Control with control	169	2.19	.14
	Integration		
Nursery school with nursery school	228	3.50	.14
Nursery school with control	89	4.19	.27
Control with nursery school	89	3.57	.23
Control with control	169	3.85	.13

scores are for the group first named when paired with children in the group named second. When a child is paired with a member of his own group, the scores of both children are counted in the group mean, thus increasing the number of cases. Figure 4 illustrates the mean scores shown in this tabulation.

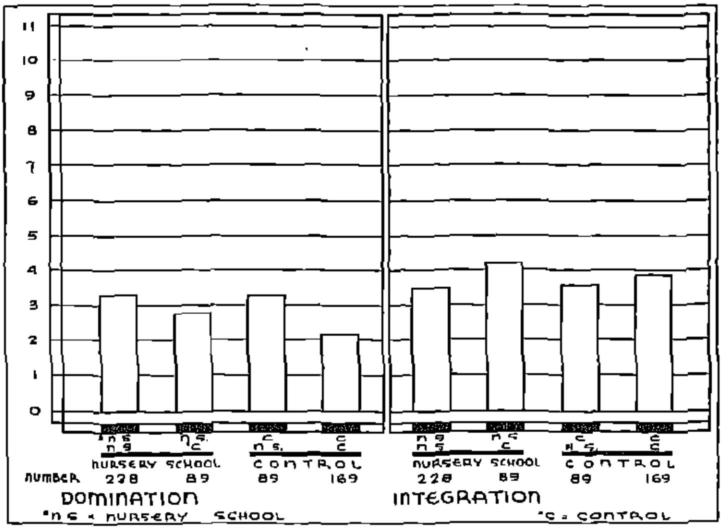

FIGURE 4

Mean Domination and Mean Integration Scores in Homogeneous and Cross Pairings of Orphanage Nursery School and Control Groups

Table 12 shows which differences between mean scores given above are significant and the extent to which other obtained differences can or cannot be accounted for by chance. In this tabulation the mean scores were for the group named first in each pair.

In the first item the nursery school children are significantly more dominating when paired with each other than are the control children when they are paired with each other. However, when the control children are paired with the nursery school children, the control children become more dominating than they were when paired with each other. This gain amounts to virtual significance, there being 99.9 chances in 100 that there is a difference greater than zero which is not due to chance. Although in item 1 in the tabulation the nursery school children are significantly more dominating than the control children, this difference fades out (item 3) when the control children and nursery school are each paired with nursery school children. When each group is paired with control children, the nursery school children again become more dominating, with 94 chances in 100 that there is a real difference. In item 5 the nursery school children are shown to be more dominating when paired with each other than when paired with control children.

All these findings show that the nursery school children tend to be more dominating. Moreover, the findings are consistent with the hypothesis on which some evidence will be reported later, that domination incites domination.

Item 6 shows the second lowest critical ratio in the tabulation for domination: there are 85 chances in 100 that the control children as a group are more dominating than the nursery school group when each is paired with members of the opposite group. It is doubtful whether this can be construed to mean that the nursery school children make the control children more dominating than the control make the nursery school group. At any rate when the little sheep is paired with the big bad wolf the little sheep becomes not only less sheepish than the sheep but more wolfish than the wolf. And the wolf becomes more sheepish than the sheep.

For integrative behavior the critical ratios are in general much smaller. When the children are paired with members of their own groups (item 7) the control group is slightly more integrative, with only 83 chances in 100, however, that the difference is not due to chance. In item 8 the control children are seen to be slightly

TABLE 12

Item	Orphanage *pairings*	Obtained *difference*	Standard error of *difference*	Critical ratio	Chances in 100
		Domination			
1	Nursery school and nursery school with control and control	1.10	.29	3.75	100
2	Control and control with control and nursery school	1.09	.37	2.95	99.9
3	Nursery school and nursery school with control and nursery school	.00	.37	.01	50
4	Nursery school and control with control and control	.61	.39	1.56	94
5	Nursery school and control with nursery school and nursery school	.49	.39	1.24	89
6	Nursery school and control with control and nursery school	.48	.45	1.07	85
		Integration			
7	Nursery school and nursery school with control and control	.35	.37	.95	83
8	Control and control with control and nursery school	.28	.46	.61	73
9	Nursery school and nursery school with control and nursery school	.07	.40	.17	56
10	Nursery school and control with control and control	.34	.50	.68	75
11	Nursery school and control with nursery school and nursery school	.69	.45	1.52	93
12	Nursery school and control with control and nursery school	.62	.53	1.17	87

more integrative when paired with each other than when paired with the nursery school group, but there are 27 chances in 100 that this difference can be accounted for by chance. The two groups are not different when paired with nursery school children (item 9), and they are probably not different when paired (item 10) with control children.

The greatest differences in integrative behavior in this tabulation are indicated in item 11. The nursery school children are more integrative when paired with control children than when paired with each other.

Summary of Data on Homogeneous and Cross-Pairings of Orphanage Children. A general summary of the above tabulation could be stated thus: (*a*) The nursery school children are not only more dominating but tend to make the control group more dominating than the control children are when not paired with nursery school children. (*b*) The differences are not so clear in integrative behavior, but such tendencies as there are indicate that the control group is probably not only more integrative but that their influence in pairings is more integrative. (*c*) The findings here are consistent with the hypotheses that: domination or intolerance of another tends to evoke domination or intolerance of oneself, and integrative behavior tends to bring out integrative behavior in another.

Comparison of Groups Based on Consecutive Observations. As mentioned before, observations were taken at the orphanage early in June and again late in August, 1935, and in February and June, 1936. The intervals between these four sets of observations were approximately three, five, and four months respectively. There was no design in these irregular intervals. The first two observation periods were set for convenience in obtaining pairings which were scheduled in another study. The February observations were taken at the end of a semester in order to get another set of data before some of the children were transferred to kindergarten. The June, 1936, period was set for a first annual retest.

Table 13 gives the mean scores for dominative and integrative behavior for both orphanage groups for each of the four observation periods. These mean scores include all available scores taken from both homogeneous and cross-pairings. They are shown graphically in Figure 5.

TABLE 13

Group	*Observation* period	Pairings	Mean	Probable error of mean
	Domination			
Orphanage nursery school	June 1935	137	3.81	.23
	August 1935	151	2.56	.16
	February 1936	116	4.28	.26
	June 1936	169	3.45	.18
Orphanage control	June 1935	81	1.78	.16
	August 1935	130	2.12	.17
	February 1936	74	4.08	.26
	June 1936	167	3.04	.17
	Integration			
Orphanage nursery school	June 1935	163	5.63	.32
	August 1935	137	3.03	.10
	February 1936	123	5.43	.23
	June 1936	169	4.39	.22
Orphanage control	June 1935	95	6.19	.44
	August 1935	121	2.67	.19
	February 1936	69	5.16	.27
	June 1936	167	5.20	.20

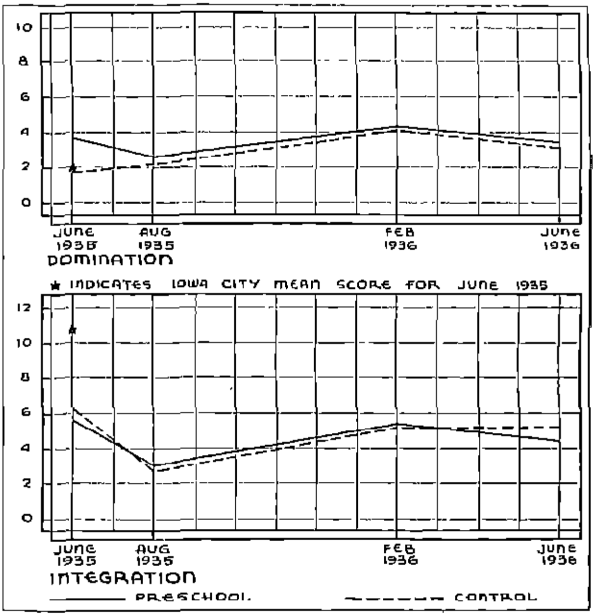

FIGURE 5

MEAN DOMINATION AND INTEGRATION SCORES FOR ORPHANAGE NURSERY SCHOOL AND CONTROL GROUPS FOR EACH OF THE FOUR OBSERVATION PERIODS

The next three tabulations are based on mean scores given in the preceding tabulation. The changes in group scores indicated in these tabulations and illustrated in Figure 5 will be discussed in the following order of topics:

1. Trends of group scores for observation periods.
    - Domination.
    - Integration.
2. Comparison of groups at respective observation periods.
    - Domination.
    - Integration.

Trends of Group Scores for Observation Periods.

Domination. Table 14 shows the differences between mean domination scores and the degree of significance of these differences between scores at different observation periods for each orphanage group separately:

TABLE 14

Group	Observation period	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
Orphanage Nursery school	June 1935 and August 1935	1.25	.41	3.05	100
	June 1935 and February 1936	.47	.47	.99	84
	June 1935 and June 1936	.36	.43	.84	79
	August 1935 and February 1936	2.72	.41	6.72	100
	August 1935 and June 1936	.89	.35	2.55	99
Orphanage control	June 1935 and August 1935	.34	.35	.96	83
	June 1935 and February 1936	2.30	.46	5.03	100
	June 1935 and June 1936	1.26	.36	3.54	100
	August 1935 and February 1936	1.97	.46	4.23	100
	August 1935 and June 1936	.92	.36	2.55	99

In the short interval between the June and August, 1935, pairings the nursery school group became significantly less dominating at the end of this period than they were at the beginning. By February, 1936, they had risen significantly in domination scores from the low point of August, 1935. In June, 1936, they were slightly less dominating than they were a year previously, but there are only 79 chances in 100 that there is a true difference.

In February, 1936, the control children are significantly more dominating than they are in either June or August, 1935. From June, 1935, to June, 1936, they changed significantly, becoming more dominating.

Integration. The differences for integrative behavior as measured at the four respective periods are shown in Table 15.

TABLE 15

Group	Observation period	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
Orphanage nursery school	June 1935 and August 1935	2.60	.54	4.84	100
	June 1935 and February 1936	.20	.59	.33	62
	June 1935 and June 1936	1.24	.58	2.16	98
	August 1935 and February 1936	2.40	.41	5.80	100
	August 1935 and June 1936	1.36	.41	3.33	100
Orphanage control	June 1935 and August 1935	3.52	.71	4.95	100
	June 1935 and February 1936	1.03	.77	1.34	90
	June 1935 and June 1936	.99	.72	1.37	91
	August 1935 and February 1936	2.49	.49	5.11	100
	August 1935 and June 1936	2.53	.41	6.15	100

There are 98 chances in 100 that the nursery school children are less integrating in June, 1936, than they were a year earlier. But this is no easier to explain than the low point in August, 1935, which is significantly below the scores for all three other periods.

The control group shows significantly lower integration scores in August than in any of the other periods of observation. The lowest difference is that between June, 1935, and June, 1936, showing in the latter observation period a slight drop in integrative behavior that has 91 chances in 100 of indicating a real difference.

Comparison of Groups at Respective Observation Periods.

Domination. The nursery school group is at all periods more dominating than the control group; only in June, 1935, however, is the difference significant. Except for this difference in June, 1935, the scores for the control group parallel rather closely the scores for the nursery school group as shown by Figure 5. Table 16 shows that with the one exception none of the differences is significant.

TABLE 16

Orphanage pairings	Observation period	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
		Domination			
Nursery school with control	June 1935	2.03	.42	4.87	100
Nursery school with control	August 1935	.44	.34	1.28	89
Nursery school with control	February 1936	.19	.51	.38	64
Nursery school with control	June 1936	.41	.37	1.13	87
		Integration			
Nursery school with control	June 1935	.56	.81	.54	71
Nursery school with control	August 1935	.36	.37	.98	84
Nursery school with control	February 1936	.27	.52	.52	69
Nursery school with control	June 1936	.81	.45	1.82	96

Integration. In August, 1935, and February, 1936, the nursery school children are more integrating than the control group, though the margin of advantage is very small and not significant. The greatest difference between the groups in integrative behavior occurred in June, 1936, when the control group had 96 chances in 100 that their superior score was the result of a real difference.

Interpretation. The data showing trends in group scores for observation periods and comparisons of orphanage groups at the respective periods have been analyzed and offered as found. No adequate explanations for fluctuations seem at hand. The drop in scores cannot be explained by the fact that the data were collected by two observers. The reliability of both observers is high and the drop in scores occurred between the first and second observations of one recorder. Moreover, this drop in activity in August, 1935, is consistent with findings shown by preliminary inspection of data of other studies made on the orphanage children to be reported by other experimenters.

It was not practicable to obtain observations at consecutive periods for the Iowa City children. The absence of such data is regrettable since it would be expected that the relatively more stable and better controlled nursery school situation would offer some light on observations at the orphanage that must as yet remain unexplained.

4. SEX DIFFERENCES

Sex Differences Among Iowa City and Orphanage Children Combined. The question arose as to whether there would be sex differences in the dominative and integrative behavior of the children at these ages. Grouping the scores for boys and for girls separately, a fairly large number of pairings was obtained from the observations of the Iowa City and orphanage children during June and August, 1935, and February, 1936. This general comparison of boys and girls is shown in Table 17 and is illustrated graphically in Figure 6.

TABLE 17

Sex	Scores	Mean	Probable error of mean
		Domination	
Boys	568	2.33	.08
Girls	462	3.27	.11
		Integration	
Boys	564	6.64	.19
Girls	427	5.78	.20

The significance of these means is presented in Table18.

TABLE 18

Sex	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
	Domination			
Boys and girls	.94	.205	4.60	100
	Integration			
Boys and girls	.86	.405	2.14	98

Girls are significantly more dominative than boys. They are also less integrative, with 98 chances in 100 that the obtained difference represents a true difference greater than zero. It has been reported that girls mature earlier in some respects than boys. To the extent, however, that high integrative scores and low domination scores indicate social maturity, the boys are more mature in their social development than are the girls.

Sex Differences Among Orphanage Children. A separate analysis was made for sex differences at the orphanage by combining scores

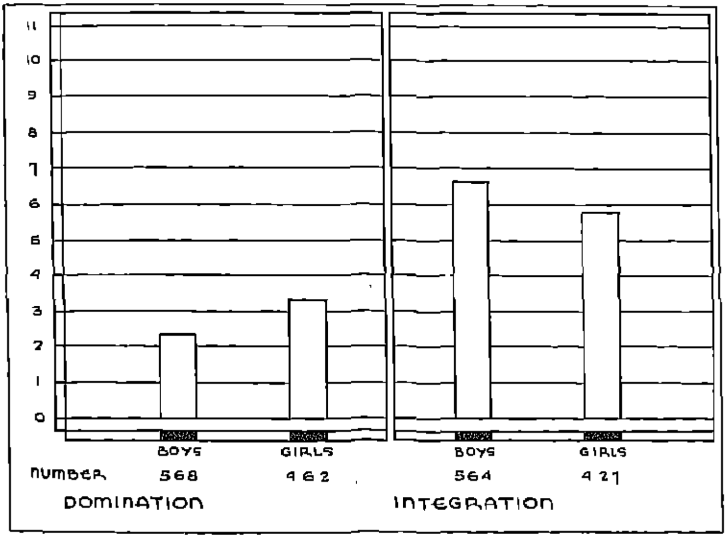

FIGURE 6

MEAN DOMINATION AND INTEGRATION SCORES FOR BOYS AND GIRLS FOR COMBINED OBSERVATIONS OF IOWA CITY NURSERY SCHOOL AND ORPHANAGE NURSERY SCHOOL AND CONTROL GROUPS FOR JUNE AND AUGUST, 1935, AND FEBRUARY, 1936

from all pairings for all four observation periods. Table 19 gives the mean scores for boys and for girls regardless of whether they were paired with the same sex or the opposite sex.

TABLE 19

Orphanage pairings	Sex	Children	Mean	Probable error of mean
		Domination		
Nursery school	Boys	235	3.25	.13
	Girls	206	3.67	.16
Control	Boys	169	2.63	.16
	Girls	146	2.73	.20
		Integration		
Nursery school	Boys	223	5.23	.24
	Girls	191	4.58	.23
Control	Boys	160	4.64	.25
	Girls	124	4.15	.31

Table 20 gives the obtained differences between mean scores, standard errors of the differences, and their critical ratios.

TABLE 20

Orphanage pairings	Sex	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
		Domination			
Nursery school	Boys and girls	.42	.31	1.35	91
Control	Boys and girls	.10	.38	.26	60
Nursery school	Boys	.62	.32	1.96	97
and control	Girls	.94	.38	2.50	99
		Integration			
Nursery school	Boys and girls	.65	.49	1.34	90
Control	Boys and girls	.49	.58	.84	79
Nursery school	Boys	.59	.51	1.15	87
and control	Girls	.44	.57	.77	77

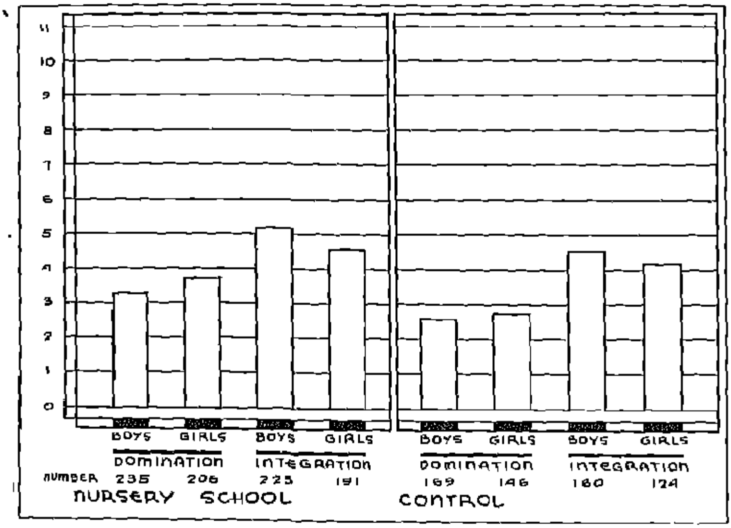

FIGURE 7

Mean Domination and Mean Integration Scores of Boys and Girls in the Orphanage Nursery School and Control Groups Respectively

The obtained sex differences reported for the larger number of cases become somewhat reduced for the finer analyses of sex differences. Figure 7, which presents graphically the mean scores included in the tabulation above, shows within the orphanage nursery school and control groups an internal consistency in sex differences. In the nursery school there are 91 chances in 100 that the girls are more dominating than the boys. There are 90 chances in 100 that the boys are more integrative than the girls. The same tendencies are shown in the control group but the differences are not significant.

When the sexes are compared for differences between the nursery school and control groups, both boys and girls in the nursery school have higher domination scores than the respective scores for control group boys and girls. The differences approach significance with 97 chances in 100 for boys and 99 chances in 100 for girls that there are true differences.

But the nursery school boys and girls are also more integrative than their respective sexes in the control group, though there are

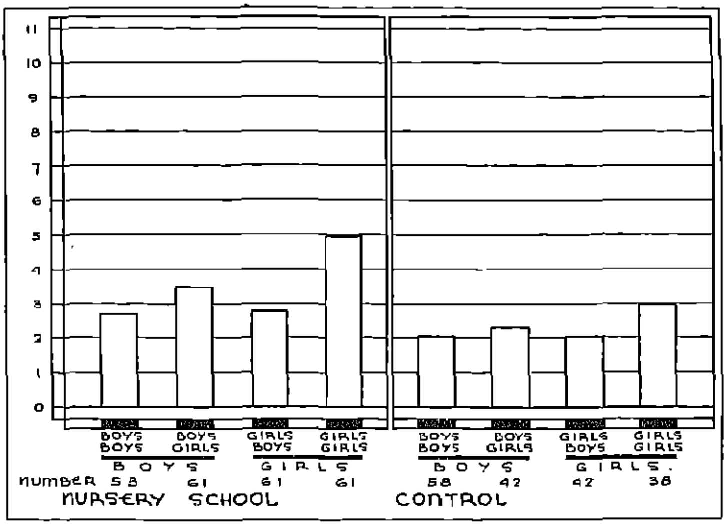

FIGURE 8

Mean Domination Scores for Orphanage Nursery School and Control Groups Showing Sex Comparisons of Scores for Boys When Paired With Boys, Boys When Paired With Girls; Scores for Girls When Paired With Boys, and Girls When Paired With Girls only 87 and 77 chances in 100 that there are true differences greater than zero.

Since this is a study in dynamic relationships it was a matter of interest whether the demonstrated sex differences should show that children of one sex are themselves different in behavior when paired with the opposite sex than when paired with their own sex. If such were the case, the change in mean domination and integration scores should follow the tendency of the sex differences in dominative and in integrative behavior. Fortunately there were enough cases to justify a more finely detailed analysis of sex differences at the orphanage. These analyses are shown in Table 21.

Domination Among Orphanage Children.

Sex comparisons within nursery school and control groups. Figure 8 presents graphically the mean domination scores given in this tabulation. Mean scores are for the first named sex of a pair.

TABLE 21

Group	Orphanage pairings	Children	Mean	Probable error of mean
	Domination			
Nursery school	Boys and boys	53	2.70	.24
Nursery school	Boys and girls	61	3.46	.26
Nursery school	Girls and boys	61	2.79	.20
Nursery school	Girls and girls	61	4.97	.40
Control	Boys and boys	58	2.02	.26
Control	Boys and girls	42	2.33	.30
Control	Girls and boys	42	2.02	.19
Control	Girls and girls	38	2.97	.33
	Integration			
Nursery school	Boys and boys	53	5.02	.84
Nursery school	Boys and girls	61	3.90	.34
Nursery school	Girls and boys	61	3.57	.32
Nursery school	Girls and girls	61	4.18	.34
Control	Boys and boys	58	6.00	.55
Control	Boys and girls	42	4.02	.47
Control	Girls and boys	42	2.88	.34
Control	Girls and girls	38	6.03	.80

The differences between these mean scores are shown in Table 22.

TABLE 22

Item	Group	Orphanage pairings	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
		Domination				
1	Nursery school	Boys and boys Girls and girls	2.27	.69	3.32	100
2	Nursery school	Boys and girls Girls and boys	.67	.49	1.35	91
3	Nursery school	Boys and boys Boys and girls	.76	.53	1.44	92
4	Nursery school	Girls and boys Girls and girls	2.18	.66	3.30	100
5	Control	Boys and boys Girls and girls	.95	.61	1.54	93
6	Control	Boys and girls *Girls and boys*	.31	.53	.59	72
7	Control	Boys and boys Boys and girls	.31	.58	.54	70
8	*Control*	Boys and boys Girls and girls	.95	.57	1.67	94
17	Nursery school Control	Boys and boys Boys and boys	.68	.51	1.33	90
18	Nursery school Control	Girls and girls Girls and girls	2.00	.77	2.61	99
19	Nursery school Control	Boys and girls Boys and girls	1.13	.59	1.89	96
20	Nursery school Control	Girls and boys Girls and boys	.77	.42	1.83	96
		Integration				
9	Nursery school	Boys and boys Girls and girls	.84	1.34	.63	73
10	*Nursery* school	*Boys and girls* Girls and boys	.33	.69	.48	67
11	Nursery school	Boys and boys Boys and girls	1.12	1.34	.84	79
12	Nursery school	Girls and boys Girls and girls	.61	.69	.88	80

TABLE 22 (*continued*)

Item	Group	Orphanage pairings	Obtained difference	Standard error of difference	critical ratio	Chances in 100
		Integration				
13	Control	Boys and boys Girls and girls	.03	1.43	.02	50
14	Control	Boys and girls Girls and boys	1.14	.85	1.14	86
15	Control	Boys and boys Boys and girls	1.98	1.06	1.84	96
16	Control	Girls and boys Girls and girls	3.15	1.28	2.46	99
21	Control Nursery school	Boys and boys Boys and boys	.98	1.49	.66	74
22	Control Nursery school	Girls and girls Girls and girls	1.85	1.28	1.45	93
23	Control Nursery school	Boys and girls Boys and girls	.12	.85	.14	54
24	Control Nursery school	Girls and boys Girls and boys	.69	.69	1.05	85

Among the nursery school children when girls are paired with girls their mean domination score is almost twice that of boys when boys are paired with boys (item 1). Girls are almost twice as dominating when paired with each other as they are when they are paired with boys (item 4). In both cases the differences are significant.

Boys on the other hand (item 3) become about 25 per cent more dominating when paired with girls than they are when paired with boys; there are 92 chances in 100 that there is a true difference. A change in pairings, from the boys' own sex to the opposite sex, raises boys to a higher level of domination score than the mean score for girls with whom they are paired.

Among the control group the same tendencies are shown as in the nursery school group, though the differences are less and are not significant. There are 93 chances in 100, however, that the girls are significantly more dominating than boys when each sex group is paired with his own sex (item 5). Girls are more dominating when paired with each other than when paired with boys; there are 94 chances in 100 that there is a true difference (item 8).

Sex Comparison between Orphanage Nursery School and Control Groups. In the comparison of nursery school children with the control group for sex differences as shown in the preceding tabulation, the nursery school children in all cases are more dominating than the control group and all the differences approach significance (items 17 to 20). The nursery school girls are more dominating than the control girls when both groups are paired with girls (item 18).

Nursery school boys are more dominating than control group boys when both groups are paired with girls (item 19). There are 96 chances in 100 that there is a true difference. The odds are also 96 in 100 for a true difference between nursery school girls and control group girls when girls are paired with the boys, the nursery school girls being more dominating (item 20).

Integration Among Orphanage Children.

Sex comparisons within nursery school and control groups. Figure 9 illustrates the mean integration scores for the same combinations of pairings examined above for domination scores in Figure 8.

For the nursery school group none of the differences is significant, though the critical ratios indicate a tendency for the children to be more integrative when paired with their own sex than when paired with the opposite sex. Boys paired with boys are more integrative than girls paired with girls but there are only 73 chances in 100 that there is a true difference. When opposite sexes are paired, the boys are still more integrative, though the difference is small.

The control group children show no real difference between boys and girls when each is paired with his own sex. Control group boys and girls each show much higher integrative scores when paired with their own sex than do the nursery school group. When paired with the opposite sex, the girls' integration scores drop to almost half the score they obtain when they are paired with their own sex. There are 99 chances in 100 that there is a difference greater than zero. Boys show a decrease in integrative scores when paired with girls; there are 96 chances in 100 that this decrease represents a true difference. When boys and girls are paired with

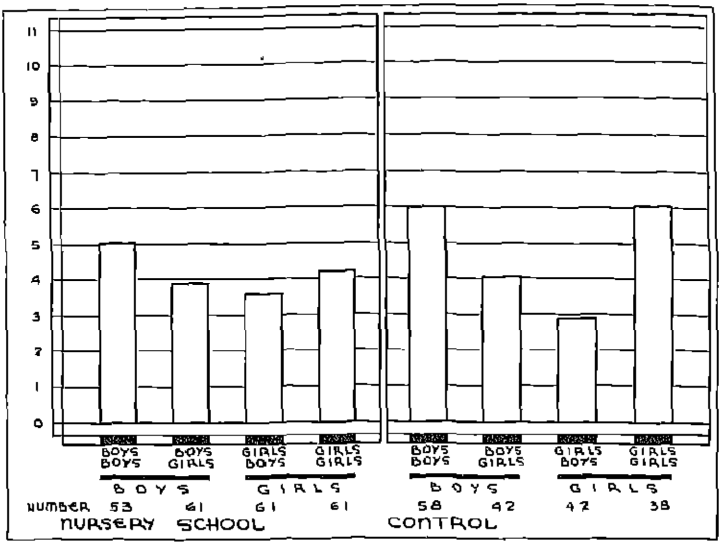

FIGURE 9

Mean Integration Scores for Orphanage Nursery School and Control Groups Showing Sex Comparisons for Scores for Boys When Paired With Boys, Boys When Paired With Girls; Scores for Girls When Paired With Boys, and Girls When Paired With Girls

each other, the boys have higher integration scores than the girls; there are 86 chances in 100 that there is a real difference.

Sex Comparison between Orphanage Nursery School and Control Groups. A glance at items 21 to 24 shows that with one exception the control group children have superior mean integrative scores in all comparisons. None of these differences, however, is significant. The largest difference, in which control group girls are more integrative than nursery school girls when each is paired with girls, has 93 chances in 100 of representing a true difference (item 22).

Sex Comparisons of Total Interactivity Within Orphanage Nursery School and Control Groups. A total interactivity score is the sum of the tallies for dominative and integrative behavior which a child receives when paired with a companion. A mean total interactivity score is the average of these scores for the number of pairings. The data on which the tabulation (p. 380) was based were used to calculate means and probable errors of total interactivity scores. Mean total interactivity scores are given in Table 22.

TABLE 22

Group	Orphanage pairings	Children	Mean	Probable error of mean
Nursery school	Boys and boys	53	7.72	.62
Nursery school	Boys and girls	61	7.36	.30
Nursery school	Girls and boys	61	6.36	.27
Nursery school	Girls and girls	61	9.15	.37
Control	Boys and boys	58	8.02	.43
Control	Boys and girls	42	6.35	.39
Control	Girls and boys	42	4.90	.27
Control	Girls and girls	38	9.00	.61

The differences between means, standard errors of differences, and critical ratios of differences between sexes are given in Table 23.

TABLE 23

Group	Orphanage pairings	Obtained difference	Standard error of difference	Critical ratio	Chances in 100
Nursery school	Boys and boys Boys and girls	.36	1.02	.35	64
Nursery school	Girls and boys Girls and girls	2.79	.68	4.10	100
Nursery school	Boys and boys Girls and girls	1.43	1.06	1.35	91
Nursery school	Girls and boys Boys and girls	1.00	.60	1.67	96
Control	Boys and boys Boys and girls	1.67	.86	1.93	97
Control	Girls and boys Girls and girls	4.10	.99	4.15	100
Control	Boys and boys Girls and girls	.98	1.11	.89	80
Control	Girls and boys Boys and girls	1.45	.71	2.02	98

The mean scores are also illustrated graphically in Figure 10.

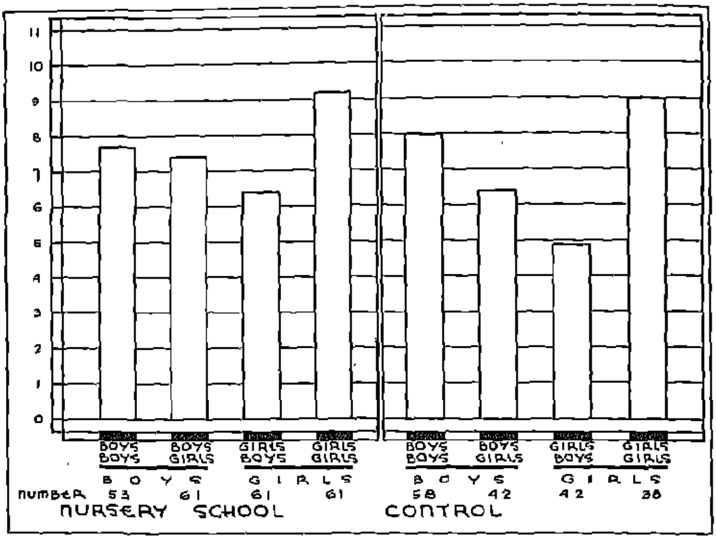

FIGURE 10

Sex Comparisons of Total Interactivity Among Orphanage Children, Mean Scores for Total Interactivity Showing Separately for Nursery School and Control Groups Scores for Boys When Paired With Boys, Boys When Paired With Girls; Scores for Girls When Paired With Boys, and Girls When Paired With Girls

A noticeable characteristic of the data shown in Figure 10 is the consistency between the nursery school and control groups in the general trend of sex differences. The differences between the nursery school and control groups are differences in amount or degree and not differences in kind or direction. A second tendency one can see in Figure 10 is the relatively outstanding amount of social interplay among the girls when they are paired with their own sex.

Girls are distinctly more active, in fact they have the highest interactivity scores of all pairings when paired with their own sex. When paired with the opposite sex, girls in both nursery school and control groups show the lowest amount of social interactivity of any pairings. In both nursery school and control groups differences are significant with obtained differences over four times their respective standard errors.

Boys, too, are more active in both nursery school and control groups when paired with their own sex than when paired with girls. The difference approaches significance in the control group, with 97 chances in 100 that it represents a true difference. In the nursery school group, however, the reduction in total interactivity scores is small and not significant.

When girls are paired with girls and boys are paired with boys, the girls are more interactive than are the boys. This superiority of the girls is greater in the nursery school group than in the control group. There are 91 and 80 chances in 100 respectively for nursery school and control groups that these differences represent true differences.

On the contrary, when the sexes are cross-paired the boys have higher total interactivity scores than the girls. This is true of both nursery school and control group children. The differences approach significance with 96 and 98 chances in 100 respectively that these differences represent true differences.

Summary of Sex Differences at the Orphanage.

1. The nursery school and control groups show an internal consistency of scores in their sex comparisons; they differ only in degree. This internal consistency can be seen graphically in Figures 8 and 9.
2. Girls are more dominating than boys.
3. When sexes are cross-paired, girls decrease in dominative behavior and boys increase in domination.
4. Girls and boys are not significantly different in integrative behavior when paired with their own sex.
5. When the sexes are cross-paired, both boys and girls show decreases in integrative behavior.
6. When the sexes are cross-paired, both boys and girls of the control group show greater decreases in integration scores than do boys and girls of the nursery school group, the decrease for control group girls amounting to virtual significance.
7. Boys are slightly more integrative in cross-pairings of sexes than are girls.
8. In cross-pairings, girls show lower scores than boys in both dominative and integrative behavior. This is true for both nursery school and control group children.

9. As regards total interactivity, the data presented indicate that among these small orphanage children sex differences are already established.

10. The sexes have relatively lower total interactivity scores when cross-paired.

11. The sex differences in total interactivity scores are less in the nursery school children than in the control group.

12. In comparing nursery school and control groups, the same internal consistency of sex differences shown in total interactivity scores was shown also for integrative behavior.

5. CORRELATION OF DOMINATION AND INTEGRATION SCORES WITH SEVERAL FACTORS

In the preliminary report (3) correlations were made respectively between domination and integration scores and a number of factors. It was found that dominative scores (based on items 2, 5, and 8 of the observation blank) showed no correlation with chronological age, mental age, IQ, change in IQ, attendance at nursery school, or length of time at the orphanage, and that domination did not correlate positively or negatively with integrative behavior. It was found also that "integrative behavior shows no correlation with the above factors with the exception of chronological age and mental age with which slight positive tendencies to correlate were indicated."[6]

Domination. In the present report domination scores, as previously explained, include items 1 to 8 inclusive on the observation blank. The coefficients of correlation between domination and several other factors are given in Table 24. The number of cases includes scores for Iowa City nursery school children unless otherwise stated.

TABLE 24

Factors	Domination Number	Domination Correlation
Mental age	1000	—.27±.02
Mental age (chronological age held constant)	128	—.35±.05
Mental age (Iowa City)	272	—.11±.03
Chronological age	1000	.00±.02
Difference in chronological ages of children	968	.08±.02
Chronological age (mental age constant)	128	.24±.06
Overweight in muscle*	233	.02±.04
Overweight in fat*	242	.00±.04
Height (nursery school)*	69	.36±.07
Height (control group)*	48	.40±.08
Time at orphanage*	58	.06±.09
Attendance at nursery school*	74	.12±.08
Ascendant behavior (Page, *op. cit.*)	98	.65±.02

*Indicates correlations based on data for orphanage children.

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[6] In the integrative scores computed for the preliminary report (3) item 12 on the observation blank was omitted because it occurred so infrequently as to show low reliability of observers. With the higher reliability of observers for this report, item 12 has been included but the presence of this item would not affect correlation coefficients previously reported in which integration scores were involved.

Mental age was computed by interpolation to the month nearest the time of observation. One thousand scorings gave a correlation of —.27±.02. This indicates a very slight tendency for domination scores to decrease as mental age increases. The higher mental ages of the Iowa City nursery school children, together with their lower domination scores as compared with orphanage nursery school children, would seem to have contributed to the slight tendency indicated by this negative coefficient.

On the same number of cases, but with the probable error based on $N = 128$ (because of the correlation between mental age and chronological age), mental age was correlated with domination scores, with chronological age held constant. This partial correlation raised the negative relationship to a coefficient of —.35±.05.

The correlation of domination scores with the mental ages of Iowa City children gave a coefficient of —.11±.03. This low coefficient indicates no practical relationship in the Iowa City group between dominative behavior and mental age. The higher correlation for Iowa City and orphanage groups combined is to be explained in part by the fact that the Iowa City children had both higher mental ages and lower domination scores than the orphanage children.

Zero correlation was found between chronological age and 1000 domination scores. The coefficient was .00±.02.

Since mental age showed a negative correlation of —.27 with domination it seemed that mental age, which tends to increase with chronological age, was somewhat influencing the zero correlation between chronological age and domination. Consequently a correlation was computed between the differences in mental ages of the children paired and their dominative scores. The difference in mental age was plus for one child and minus for the other child of each pair. A very small coefficient of .08±.02 was obtained. It seemed that mental age was still counteracting the correlation with chronological age. A partial correlation was then computed holding mental age constant, with the result shown in the next item.

A partial correlation of chronological age and domination scores was computed with mental age held constant. This gave a positive coefficient of .24±.06. Although the probable error is fairly large, it would seem to indicate that mental age and chronological age show a slight opposition to each other in their influences on domination scores.

If chronological age with mental age held constant would seem *to have a positive effect on dominative* behavior the question might arise whether height or weight, which are related to chronological age in young children, might be affecting domination scores. Certain physical measurements of orphanage children used in research by other investigators were available. Measurements of "overweight in muscle" showed no relationship with domination scores, the coefficient of correlation being .02±.04.

The coefficient of correlation between "overweight in fat" was .00±.04.

Because of the significant differences in domination scores between the orphanage nursery school and control groups separate correlations were computed between height and domination scores. In the nursery school group a coefficient of .36±.07 was obtained, indicating that in the nursery school group height is a slight factor in affecting domination scores.

In the control group, also, a coefficient of correlation of .40±.08 was obtained for height and domination scores, indicating that in the control group (less dominating than the nursery school group) height does have a slight positive relationship to dominative behavior.

The question was raised whether the length of time the child had been at the orphanage affected his domination score. The *coefficient of correlation of .06±.09 shows a zero relationship.*

At the time these data were obtained there was also a zero relationship between domination scores and the number of days in attendance at the orphanage nursery school. The coefficient of correlation was .12±.08 for 74 measures.

It has been explained previously that by definition Jack (4) included without distinction under ascendant behavior social responses which are defined by the writer as dominative and as integrative behavior. A child might be expending energy in a common purpose with a companion (integrative behavior) or he might be expending energy at cross-purposes (dominative behavior); both would be recorded by Jack and by Page[7] as ascendant behavior. It was to be expected, therefore, that there would be found some correlation between ascendance on the one hand and domination and integration on the other. Fortunately, the original records of the Page research were made available for use in this study. The coefficient of correlation between domination scores and ascendant behavior as recorded by Page was .65±.02.

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[7] In the spring of 1935 when the writer was setting up an experiment in dominative and integrative behavior, Miss Marjorie L. Page was undertaking a doctor's dissertation on the modification of ascendant behavior (5) in preschool children, repeating certain of the Jack procedures. It was not practicable to carry on at the same time another study in which the same children would be paired without introducing a possible unmeasured influence on their ascendant behavior. Miss Page kindly consented to allow

Integration. Table 25 gives coefficients of correlation between several factors and integration scores. Again the correlations are based on data from the Iowa City nursery school and the orphanage groups combined unless otherwise indicated.

TABLE 25

Factors	Integration Number	 Correlation
Mental age	872	.30±.03
Mental age (chronological age held constant)	128	.34±.05
Chronological age	975	.07±.02
Chronological age (mental age constant)	128	—.16±.06
Height (nursery school)*	71	.15±.08
Height (control group)*	51	.40±.09
Time at orphanage*	56	.18±.09
Attendance at nursery school*	77	—.03±.08
Ascendant behavior (Page, *op. cit.*)	98	.44±03

*Indicates correlations based on data for orphanage children.

A coefficient of correlation of .30±.03 with mental age on 872 scores is raised to .34 when chronological age is held constant. This shows a slight positive relationship between mental age and integrative scores. The coefficient obtained when integration scores were correlated with chronological age was .07±.02. This coefficient became —.16±.06 when mental age was held constant. These coefficients indicate virtually no relationship.

For the orphanage nursery school children, height correlates .15±.08 with integrative scores, whereas for the control group, height correlates .40±.09. The numbers of scores are small and the probable errors large for both nursery school groups. The correlations indicate a slight tendency but no difference between groups.

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another observer to be present during certain of her pairings of children in Iowa City and at the orphanage in June and August, 1935. For these two observation periods the children used in this study were observed simultaneously by one observer who recorded domination and integration behavior and by another observer who recorded ascendant behavior.

Time at the orphanage shows no correlation with integrative behavior. Attendance at the orphanage nursery school up to the time these data were obtained showed no correlation with integrative behavior as shown by the coefficient of —.03±.08.

Ascendant behavior, as recorded and scored by Page, when correlated with integration scores shows a coefficient of .44±.03. Recalling that the coefficient of correlation between ascendant behavior and domination was .65±.02, it is evident that a child's ascendant score would probably yield a better prediction of his dominative behavior than of his integrative behavior.

Summary and Interpretation of Correlations. Domination scores have a slight negative correlation (—.35±.05) with mental age when chronological age is held constant. Domination scores have a slight positive correlation (.24±.06) with chronological age when mental age is held constant. Among orphanage children, domination shows no correlation with overweight in muscle, overweight in fat, time at the orphanage, or day's attendance at the nursery school. Domination correlates with height in the nursery school group (.36±.07) and shows also a small positive relationship (.40±.08) with height in the control group.

Integration scores show a positive correlation of .30±.03 with mental age. At the orphanage, integration scores show slight positive correlations with height for the control group with coefficients of .40 for the control group and .15 for the nursery school group. Integration scores do not correlate with length of time at the orphanage nor with days' attendance at the nursery school.

The tendency of mental age to correlate positively with integration scores and negatively with domination scores is in a way a validation of a fundamental assumption in this study: that high integration scores and low domination scores are measures of social maturity and criteria of growth.

6. THE DYNAMIC NATURE OF INTERACTIVITY

Most of the findings of this study have been presented. It is now possible to assemble the evidence which has direct bearing on some of the main hypotheses underlying this investigation.

Domination Incites Dominative Behavior in One's Companion.

Cross-pairings of orphanage groups. It was seen in Tables 11 and 12 and in Figure 4 that among the orphanage children the nursery school group were significantly more dominating than the control group when each child was paired with children from his own group. But when nursery school children were randomly cross-paired with control group children this relationship between mean domination scores changed. The group having the significantly higher domination score (nursery school paired with nursery school) became less dominating and the group having the significantly lower domination score (control paired with control) became more dominating when children in the high and low score groups were cross-paired (nursery school child paired with control child). Moreover, this dynamic tendency toward equalization was so strong as to raise the lowest mean score to a point actually higher than the mean to which the highest score dropped. That is, in the cross-pairings the two groups overcompensated for their original differences to such an extent that the control group became more dominating than the nursery school group. The increase of the low mean domination score (control group) had 99.9 chances in 100 of representing a true difference. The decrease of the higher mean domination score (nursery school group) had 89 chances in 100 of being significant.

Cross-pairings of sexes at the orphanage. Domination scores for homogeneous and cross-pairings of sexes are shown in Tables 11 and 12 and are illustrated by Figure 8. Significant sex differences in mean domination scores were found among the orphanage nursery school children. As pointed out above, the control group children were less dominating than the nursery school children. However, the control group children showed exactly the same sex difference tendencies as did the nursery school children; the differences between boys and girls approached significance. There are 93 chances in 100 that the control group girls were more dominating than the control group boys. These differences are between the mean scores of boys when boys were paired with boys and the mean scores of girls when girls were paired with girls.

When, however, the domination scores of these random pairings of orphanage children were sorted out to show cross-pairings of the sexes, the sex relationship changed. In the nursery school group the sex having the significantly lower mean domination score (boys paired with boys) became more dominating in the cross-pairings. There are 92 chances in 100 that this increase was greater than zero. On the other hand, the sex having the significantly higher mean domination score (girls paired with girls) became less dominating in the cross-pairings. The decrease in dominative behavior was a significant decrease. Not only this, but there is seen the same overcompensation of the tendency toward equalization of scores that occurred in the cross-pairings of nursery school and control group children. The nursery school boys in the cross-pairings with girls actually increased their low mean domination score to a point above the mean domination score for girls in the same cross-pairing. In the control group all the changes were in the same direction and the boy-girl own-sex differences and the decrease of girls' score in the cross-pairings approached significance. The domination scores were in all respects internally consistent, thus adding credence to those tendencies which only approached significance.

Correlation of high with low domination scores. Another method of analyzing the data not previously discussed was used to show the dynamic relationship between domination in one child and dominative behavior in his companion. The higher dominative scores of 513 pairings were correlated against the domination scores of the companion. A correlation coefficient of .68±.017 was obtained.

Figure 11 shows the regression lines for the higher and lower domination scores in the 513 pairings. The main value of regression lines lies in prediction. Given child *A*'s domination score and the knowledge that this score is either above or below that of his companion, one can use the regression lines to predict the companion's "most probable" domination score.

From line *X* one predicts the most probable domination score of a companion when the child's own score is higher than that of the companion. *From line Y one predicts the companion's domination*

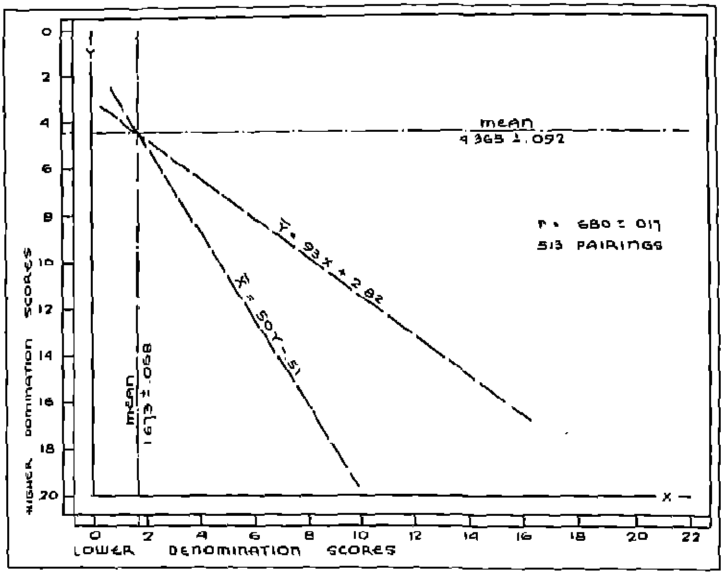

FIGURE 11

Domination Incites Domination: Regression Equations of Higher Domination *Scores Correlated With Lower Domination Scores*

score when the child's own score is lower than the domination score of the companion.

If there were a perfect correlation, that is, if domination always incited dominative behavior in a companion, the regression lines would coincide and the prediction from one score would be exact. The regression lines indicate the degree to which one can predict most probable dominative behavior in a companion from a child's own domination score.

Since theoretically it is assumed that domination produces either resistance (domination) or submission (a fear response), the correlation of .68 is very high, submission responses not being recorded in this study. It shows that even for small children the use or threat of force tends to incite similar behavior in a companion.

Integrative Behavior Induces Integrative Behavior in One's Companion.

Cross-pairings of orphanage groups. In the comparison of homogeneous and cross-pairings of orphanage nursery school and control groups, none of the differences between mean integration scores was significant. The dynamic tendencies are thus less evident and less conclusive than is the case with dominative behavior. Nevertheless the tendencies though small are consistent. In Tables 11 and 12 and in Figure 4 it can be seen that the lower integrative group becomes more integrative in behavior when cross-paired with the higher integrative group with 93 chances in 100 of a true difference. The higher integrative group when cross-paired reduces its integrative scores but with only 73 chances in 100 that the change represents a real difference.

Cross-pairings of sexes at the orphanage. Sex comparisons showed no significant differences in either nursery school or control groups when children were paired with their own sex. Since there are no high-low differences between sexes in integrative behavior, these data cannot afford evidence of predicted change through circular responses as was the case with mean domination scores.

Correlation of high with low integration scores. The high integrative scores of 514 pairings were correlated against the integrative scores of the companion. A positive coefficient of correlation of .82±.01 was obtained.

Figure 12 shows the regression lines for the higher and lower integration scores in 514 pairings. It will be noted that the high correlation of .82 brings the regression lines much closer together than for dominative behavior. This correlation indicates that there is an even greater accuracy in predicting from a child's integration score the integration score of his companion than there was in the regression equations for domination.

These data do not indicate that the meek are inheriting the earth, but they do indicate the possibility of great educational effectiveness of noncoercive behavior in dealing with small children.

Domination Not Only Different from But Dynamically Unrelated to Integrative Behavior. A coefficient of correlation for 1,030 scores was computed between children's domination scores and integration scores for their respective companions. The coefficient obtained was —.10±.02. This indicates that there is no dynamic relationship between domination in one child and integrative behavior in his companion as observed and recorded in this experimental situation.

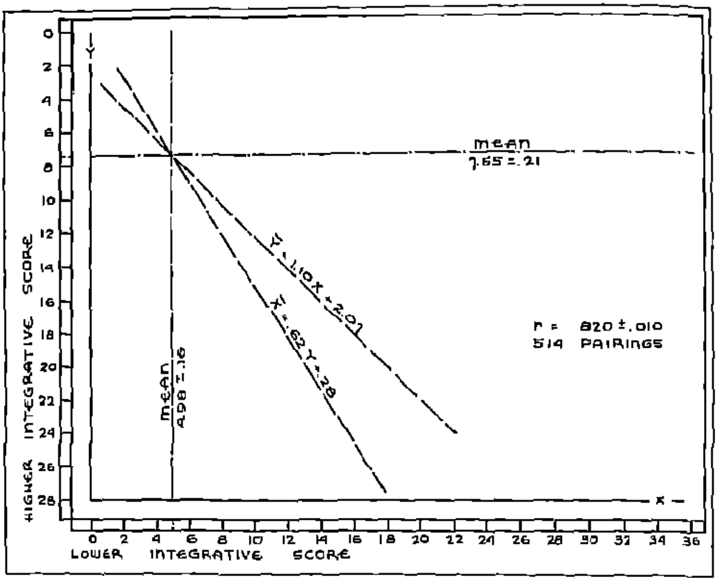

FIGURE 12

INTEGRATION INDUCES INTEGRATION; REGRESSION EQUATIONS OF HIGHER INTEGRATIVE SCORES CORRELATED WITH LOWER INTEGRATIVE SCORES

A coefficient of correlation for 1,030 *scores* was computed between domination scores and the children's own respective integration scores. The coefficient obtained was —.07±.02.

From the evidence given above, there might seem to be an apparent inconsistency in the hypotheses underlying the relationship between dominative and integrative behavior. The negligible correlations would seem to indicate that a child would be just as integrative with a highly dominating companion as with a much less dominating companion. Why was there found to be no relation between these two different kinds of behavior instead of a negative relation between domination and integration? Why did not these slightly negative correlations come out highly negative? The answer to these questions lies in the hypothesis that domination can prevent or obstruct integrative behavior if the intolerance of difference and the balance of power are both too great, but it cannot induce integrative behavior. It might be mentioned again that no attempt is made here to oversimplify the concepts of personality growth or to present a scheme that will explain all behavior. The most that is attempted here is to be consistent in such definitions and hypotheses as have been used.

The concept of *confronting* of differences seems crucial in explaining the negligible correlation between dominative and integrative behavior revealed in this study. The confronting of differences means the expenditure of energy either in a common purpose (yielding to differences) or the expenditure of energy in opposition to differences (resisting differences). A problem in theory has been raised which needs more elaboration than can be given here, but an illustrative example may be helpful. The white men and the Indians had conflicting interests. When there was plenty of good hunting ground, some of the Indians moved off into other territory during the earlier invasion of the white man. It may be said that these Indians chose not to be obliged to expend energies responding to the white man. But the white invasion pursued them; the confronting became obligatory. The relating process drew upon the energies of the Indians.

It has been shown that domination incites domination and integrative behavior induces integrative behavior. The lack of relation between domination and integration is probably due to the nature of the experimental play situation. Most children when paired with a dominating companion responded by resistance; this can be said to have been the general tendency. But in resisting domination, some moved farther away to a point from which they might next have done one of two things, one giving a low integration score, the other yielding a higher integration score. They might either have ignored the companion except for such resistance as was necessary to protect their isolation, or have attempted integrative overtures from this protective distance. In the experimental play situation as arranged for this study, it was frequently possible for a child to protect himself against domination by withdrawing from the companion or, on occasions, by ignoring him. The writer would assume that under different experimental conditions in which each child had little opportunity to withdraw to another area or to increase what may be called here psychological distance, that domination would correlate higher with domination and might even show a negative relationship with integrative behavior.

TABLE 26

Given	One can predict	Hypotheses	One cannot predict	Hypotheses
A child's domination score	The companion's domination score $r = .68 \pm .02$.	Domination incites domination.	The companion's integration score $r = -.10 \pm .02$.	Domination does not induce integrative behavior.
		Domination is dynamically related to dominative behavior in a companion.		Domination is not only different from but dynamically unrelated to integration.
		An insecure child makes a companion insecure.		An insecure child does not make a companion secure.
		Energy expended against a companion will induce energy in the companion directed against oneself.		Energy expended against a companion does not induce energy in the companion directed in a common purpose with oneself.
			The child's own integration score $r = -.07 \pm .02$.	Domination is not only different from but dynamically unrelated to integrative behavior.
If child *A* belonging to a group having low mean domination score is paired with a companion *B* who belongs to a group having a high mean domination score.	Child *A* will become more dominating than he was in his own group. Child *B* will become less dominating than he was in his own group (see tabulations, p. 367, 379).	Domination is dynamically related to domination.		

Given	One can predict	Hypotheses	One cannot predict	Hypotheses
ild's integration re.	The companion's integration score $r = .82 \pm .01$.	Integration induces integrative behavior in the *companion.*	The *companion's domination* score $r = -.10 \pm .02$.	Integrative behavior does not induce dominative behavior in a companion.
		Integrative behavior is dynamically related to integrative behavior in a companion.		*Integration* is not only different from but dynamically unrelated to dominative behavior.
		A secure child makes for security in a companion.		Security in a *child does* not induce insecurity in *a companion.*
		Energy expended in a common purpose with a companion induces energy in the companion directed with oneself.		Energy spent in a common purpose does not induce the expenditure *of energy in the com*panion directed in opposition to oneself.
			The child's own domination score $r = -.07 \pm .02$.	Integration is not only *different from but* dynamically unrelated to dominative behavior.

These two coefficients of —.10 and —.07, being both negative, indicate a negative if any relationship between domination and integration scores. The coefficients are, however, so small as to be negligible. They indicate that domination as defined, observed, and recorded in this investigation is not only different from but dynamically unrelated to integrative behavior as also defined. They add, therefore, to the validation of the concepts and definitions used in this study.

A schematic summary of the data bearing on the dynamic nature of the process of responding by which individuals resist or integrate differences is given in Table 26. All the data summarized here contribute to the validation of both the definitions of dominative and integrative behavior used in this study and the concepts and hypotheses underlying these definitions.

Summary. This investigation offers evidence that within the limits of this study:

1. Domination in a child incites dominative responses in a companion.
2. Integrative behavior in a child induces integrative behavior in a companion.
3. Dominative behavior and integrative behavior are not only different techniques of responding to others, but in this experimental situation are dynamically unrelated.

7. SUMMARY AND CONCLUSIONS

Definitions and Hypotheses. Integrative behavior is defined as a phenomenon of growth in which the individual responds to differences in other persons. In integrative behavior a person yields to another; he finds a common purpose among differences and expends energy with another, i.e., he achieves a change in structure or function, in goals and purposes as a result of encountering persons different from himself. Integrative behavior is spontaneous, dynamic, flexible, changing; in theory it is growth at the optimum.

Dominative behavior is defined as a technique of responding to others by which a person resists differences, resists change, resists growth. In dominative behavior a person is rigid and inflexible, he has his mind made up; he does not reduce the conflict of differences by finding a common purpose among differences; rather, he maintains or increases conflict or tension between himself and others who differ from himself; he expends energy against or in opposition to others. In dominative behavior a person disregards the desires of others, he uses commands, threats, or force to gain his unyielding objectives; he attacks the status of others; he adds to the insecurity of others.

Domination is something less than spontaneous behavior. It is not yielding or growing; it is self-preserving; it is an expression of fear of an impending change; it is the behavior of an insecure person.

Hypotheses were advanced holding that domination incites resistance or that if the balance of power is too great it produces submission. Resistance to domination is itself dominative behavior. Submission, like domination, is a fear response; it is the response of an insecure person afraid of impending change; it is an effort to preserve a status quo. However justified resistance or submission may be on ethical or social grounds, neither one is related to growth.

There are probably no situations in which one can find domination or integration in a "pure" form. But most situations in which persons find themselves from moment to moment are characterized by one or the other technique of responding to differences.

The concept of "ascendant behavior" includes dominative and integrative behavior without distinction. Ascendance as a term characterizing personality does not differentiate between flexibility and inflexibility in responding to differences. Snatching a toy from another child and asking one if he may play with a toy as soon as he is through with it are both by definition expressions of ascendant behavior. It is held here that domination and integration are fundamentally different and unrelated techniques of responding to differences, and that the concept of ascendant behavior is not helpful in explaining personality growth.

Subjects. One hundred twenty-eight children of preschool age were studied. These children comprised three groups: (*a*) a nursery school group attending the preschool laboratories of the Iowa Child Welfare Research Station; (*b*) an orphanage nursery school group attending an experimental nursery school in an orphanage; (*c*) a control group of orphanage children matched for chronological age, mental age, and length of residence at the orphanage but not attending nursery school. The orphanage nursery school had been opened in the fall preceding the beginning of this study and considerable evidence was at hand that the nursery school children were still having difficulty in adjusting to the new situation.

Procedure. Each child was paired at random with five others. Orphanage children in nursery school and control groups were paired with members of their own group and with members of the other group. Two children were brought to the experimental play room and were allowed to play with a sand box and toys for five minutes, the observer recording their behavior through an observation screen. The observations were reduced to domination and integration scores.

Results. The following results were obtained:

1. Coefficients of reliability of observers ranged from .90 to .99.
2. Teachers' ratings showed they were better able to judge dominative than integrative behavior.
3. Iowa City nursery school children are significantly more integrative than children in either orphanage groups.
4. Iowa City nursery school children are significantly less dominating than orphanage nursery school children.
5. Orphanage nursery school children were significantly more dominating than either orphanage control or Iowa City nursery school children.
6. Orphanage nursery school children are significantly more

dominating than control group children when pairings are made within each respective group.

7. When orphanage nursery school and control group children are cross-paired, the mean domination score of the nursery school children decreases and the mean domination score of the control group children increases. This tendency toward equalization of scores in cross-pairings is overcompensated: in the cross-pairings the control children become more dominating than the nursery school children. The changes either are significant or approach significance.

8. Orphanage nursery school children are less integrative than the control group children when pairings are made within each respective group. The difference, however, is not significant.

9. When orphanage nursery school children and control group children are cross-paired, the mean integration score of the nursery school children increases and the mean integration score of the control group children decreases. This tendency toward equalization of scores in cross-pairings is overcompensated : in the cross-pairings the nursery school children become more integrative than the control group children. The differences are not significant though one change approaches significance.

10. *Records taken at the orphanage at intervals four times during* the course of a year showed a general parallelism in trends between nursery school and control group children. A decrease in both dominative and integrative behavior for both nursery school and *control groups in August, 1935, and a rise again in February, 1936,* are unexplained, though consistent with similar unexplained tendencies shown over the same time intervals in studies in progress by other investigators.

11. Combined data from all three groups show girls *significantly* more dominating than boys, the critical ratios between the obtained difference and standard error of the difference being 4.60.

12. Combined data from all three groups show that boys are more integrative than girls. There are 98 chances in 100 that there is a true difference.

13. When orphanage data are analyzed for sex differences, nursery school boys have higher domination and higher integration scores than control group boys; the chances in 100 that there are true differences are respectively 97 and 87.

14. When orphanage data are analyzed for sex differences, nursery

school girls have higher domination and higher integration scores than control group girls; the chances in 100 that there are true differences are respectively 99 and 77.

15. When sexes are cross-paired at the orphanage, the mean domination score for boys increases and the mean domination score for girls decreases. This tendency toward equalization of scores in cross-pairings of sexes is overcompensated: the boys become more dominating than the girls. The tendencies are identical among both nursery school and control children though less marked in the control group (which have been shown to be less active). In the nursery school group the changes are significant or approach significance. Moreover, in the nursery school group there are 92 chances in 100 that the overcompensation has resulted in a significant reversal of sex superiority in domination scores.

16. There are not significant sex differences in integrative behavior when pairings are made within each respective sex group.

17. When sexes are cross-paired, both boys and girls show decreases in mean integration scores. The decreases are not significant though in the control group there are 96 and 99 chances in 100 respectively for boys and girls that the decrease represents a true difference.

18. In cross-pairings of sexes the decrease in integration scores is greater for girls than for boys in both nursery school and control groups.

19. When domination and integration scores are combined to show total interactivity scores, the orphanage girls in both groups have higher scores than the boys when pairings are made within each respective sex group.

20. When sexes are cross-paired, the total interactivity scores for both boys and girls decrease. The decrease is significant for girls in both nursery school and control groups and has 97 chances in 100 of representing a significant decrease for control group boys.

21. When sexes are cross-paired, the decrease in total interactivity scores for both boys and girls in both nursery school and control groups show a consistent overcompensating reversal in sex comparison. The significantly greater decrease in total interactivity scores for girls in the cross-pairings gives the girls a lower mean score than the mean score for boys. This superiority of the boys in total interactivity in cross-pairings is found in both nursery school and control groups;

the chances in 100 that this superiority represents a true difference are 96 and 98 respectively for nursery school boys and control group boys.

22. Domination shows a negative correlation of —.27 with mental age which is increased to —.35 when chronological age is held constant.

23. Domination shows no correlation with the difference in mental ages of children paired.

24. Domination shows a zero correlation with chronological age, which is increased to .24 when mental age is held constant.

25. Domination shows zero correlation with overweight in muscle and overweight in fat, but shows a positive correlation of .36 with height among control group children.

26. Domination shows no correlation with length of time at the orphanage or attendance at the orphanage nursery school.

27. Integration scores when correlated with mental age show a coefficient of .30 which is raised to .34 when chronological age is held constant.

28. Integration scores show a correlation of .40 with height among control group children, but no correlation with length of residence at the orphanage or days' attendance at the orphanage nursery school.

29. Simultaneous records of ascendant behavior as defined by Jack (4) and dominative and integrative behavior as defined in this study were made on 98 cases. Ascendant behavior has coefficients of correlation of .65±.02 with domination scores and .44±.03 with integrative behavior.

30. Evidence in support of the hypothesis that domination incites dominative behavior in the companion is drawn from:

The analysis of cross-pairings of groups at the orphanage.

The analysis of sex comparisons at the orphanage.

A coefficient of correlation of .68±.02 between high domination scores in 513 pairings and the companion's domination scores.

31. Evidence in support of the hypothesis that integrative behavior induces integrative behavior in a companion was drawn from:

The analysis of cross-pairings of groups at the orphanage.

A coefficient of correlation of .82±.01 between high integration scores in 514 pairings and the companion's integration scores.

32. Evidence in support of the hypothesis that domination and integration as defined are not only different techniques of responding *to differences, but in the experimental play situation used are dynamically unrelated* was shown in:

A coefficient of correlation of —.10±.02 between domination scores of 1,030 pairings and the companion's integration scores.

A coefficient of correlation of —.07±.02 between domination scores of 1,030 pairings and each child's own integration scores.

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THE SEQUENTIAL PATTERNING OF PRONE PROGRESSION IN THE HUMAN INFANT 411

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THE SEQUENTIAL PATTERNING OF PRONE PROGRESSION IN THE HUMAN INFANT*[1]

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1. HISTORICAL ACCOUNT

The literature on prone progression is surprisingly limited considering the universality of this phenomenon, the wealth of subjects obtainable, and the comparative ease with which observations can be made. True, the majority of earlier child biographers made scattering allusions to forms of progression observed by them, but no careful sequential treatment was attempted and there was little uniformity in terms from one study to another. Such studies are of value in the present connection only because motor patterns described in them anticipate the sequences determined by later investigators. They will not be reviewed here. Burnside's historical account (7, pp. 284-293) may be read for a brief survey of these works which have also been reviewed in some detail by the present writer (1, pp. 146-163).

The first normative approach to the problem, as well as the first study in which a large number of infants was observed under carefully controlled conditions over a period of many months, is the work of Gesell. In 1925 he published norms[2] for various types of postural situations, giving frequencies for the following items: lifts head prone, lifts head and chest, crawls, creeps or hitches.

The treatment is still normative, though much more elaborate in *Infant Behavior,* published nine years later. Here tables are given for various types of postural behavior, showing not only the sequential stages or patterns of behavior observable in infants as each type of postural behavior develops, but also the percentage of infants evincing such patterns at each age level throughout the first year of life.[3] The table for prone behavior alone contains 44 postural items (20, p. 64), tracing development from four to 56 weeks.

In the normative volume of the *Atlas of Infant Behavior* (18, pp. 92-145) is pictured typical prone performance at monthly age levels through the first year of life. Stages of prone behavior illustrated include: (1)[4] thrusting one knee forward beside the body, at 28 weeks; (3) pivoting, at 32 weeks; (4) rolling to one side, at 36 weeks; (7) attaining the high creep position, at 40 weeks; (10) creep-crawling, at 40 weeks; (11) creeping, at 44 weeks, and (14) quadrupedal progression, at 52 weeks.

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[2] These norms were standardized on a group of 50 normal infants who were observed at monthly intervals during the first year of life. For a detailed description of method, see Gesell, (16).

[3] These norms were standardized on a group of 107 infants, being based on more than 500 individual examinations.

[4] Numbers in parenthesis indicate stages in the sequence described in the present dissertation.

The first detailed analytical study dealing primarily with prone progression is that of Burnside, who employed the motion picture technique. Her most valuable contribution is the distinguishing of crawling—progression in which the abdomen is in contact with the supporting surface while the body is pulled along by the arms only, with the legs dragging—from creeping, progression in which the trunk is carried free above the floor (7, p. 338). She notes that in human locomotion there are typical stages of progression: crawling (or rolling or hitching), arhythmic creeping, and rhythmic creeping.

Shirley studied 24 subjects at fortnightly intervals over a two-year period. Her method was simple observation. She established a sequence of five orders of postural skills which the infant exhibits as it develops. These orders are as follows: *First order skills* (0-20 weeks): passive postural control. *Second order skills* (25-31 weeks): postural control of entire trunk and undirected activity. *Third order skills* (31-40 weeks): active efforts at locomotion. *Fourth order skills* (40-50 weeks): Locomotion by creeping. *Fifth order skills:* postural control and coordination for walking. Shirley selects the following seven stages as making up the creeping sequence:

Description of stage	Median age in weeks
Chin up	3.0
Chest up	9.0
Knee push or swim	25.0
Rolling	29.0
Rock or pivot; some progress	37.0
Scoot backward	39.5
Creep	44.5 (32, p. 43)

McGraw also has treated the problem of prone progression sequentially. Her summary of prone behavior contains five stages, and differs little from Shirley's. The descriptions of developing prone progression given by these two writers agree in general with those of the present investigation, but do not constitute a complete detailed picture of behavior as we have observed it.

Even more recent is the Yale study by Thompson (35) in which she describes the developmental trends for head, arms, legs and trunk. She points out that as the child develops the head is gradually raised till at 16 weeks it is characteristically held erect; that the arms are gradually extended and directed forward till 28 weeks when they are brought back under the body; and that the legs are flexed and adducted at 4 weeks, then an outwardly rotated and gradually extended position develops, and the feet are lifted from the supporting surface. "At 20 weeks and again with greater extension of the limbs at 28 weeks, the child commonly rests momentarily on abdomen and chest. . . . After 4 weeks it is not until 44 weeks that the legs are drawn under the body and adducted" (35, p. 105).

We shall review here the work which has been done on the sequential patterning of locomotor behavior in infra-human organisms. The sequence which most resembles that in the human infant has been observed in the chimpanzee. Jacobsen, Jacobsen and Yoshioka report,

> In making progress toward creeping the chimpanzee infant passed through the first five stages (as described by Shirley). Thus, Alpha succesively lifted the head, chin free; lifted the head, chest free, when on the stomach; attempted to make forward progression by pushing with legs; rolled when on her back; and pivoted and wormed her way forward . . . Creeping forward, the last phase . . . was absent; in contrast, Alpha stood and walked on all fours (24, p. 51).

Descending the animal scale we come to the cat. Shirley, in reviewing some of the outstanding research on this species notes that for the most part the fetal behavior proceeds in an anterior-posterior direction. . . . Backward crawling, sitting, walking, scratching, righting the body in the air, running . . . following in turn (33, p. 249). Coronois stresses the facts that not only does behavior appear to be progressing along a cephalocaudal course, but that it appears first in the gross musculature and in the fine musculature later, and also that it develops in each of the limbs from a proximal to a distal point (12, pp. 283-286).

Langworthy has observed in opossums a sequence of behavior patterns very similar to that seen in human infants, even though less extensive. Animals studied by him were seen first to pivot (or roll to one side), then to crawl, then to creep backward, and finally to creep forward (26, pp. 1-13).

Both because of its phylogenetic and its ontogenetic importance, we shall consider briefly the literature on one restricted phase of locomotion, quadrupedal progression, that is progression on hands and feet with the trunk parallel to the floor. Alternate movements in each pair of limbs and diagonal synchronism of the two pairs are observed.

This phase of locomotion has received relatively little attention in the past, though even before 1900 we find most child biographers (i.e., Perez, Preyer, Gross, Shinn and Sigismund) noting its occurrence in their subjects. Trettein even gives statistical data on the subject, commenting that 9 per cent of the 150 infants observed by him progressed on all fours (36, p. 31). These early writers seemed to consider quadrupedal progression as a behavior pattern which occurs in most infants in the normal course of development. Preyer states that walking on all fours is the natural preparatory school for normal walking (23, p. 7), while Feldman comments,

> Lying on the abdomen, the child makes attempts to reach near objects by pushing its body along upon its knees and elbows. The hands soon take the place of elbows, and lastly the feet replace the knees, so that the child begins to crawl on its hands and feet like any quadrupedal animal (14, p. 365).

Later writers, however, either ignore the phenomenon entirely, or treat this type of progression as a somewhat unusual manifestation. Burnside disagrees with Feldman. Hrdlicka, who has perhaps done the most work on the subject, persists in treating it as a "peculiarity of behavior" (23, p. 92), even though he admits that it is "non-pathological" (22, p. 273). He states, "The phenomenon, while not as rare as may have seemed at first, is nevertheless not frequent" (23, p. 13), and throughout his book, *Children Who Run On All Fours*, treats it as something of an abnormality, the conditions of whose occurrence should be carefully investigated.

During the past year one or two researchers have given reports which tend to swing back to the earlier view, which is also held in the present thesis. Levy and Tulchin note that all fours progression occurs much more frequently than is generally supposed, reporting that either this kind of creeping, or creeping on hands, one knee and one foot, occurred in 14 out of 83 infants observed by them (28, pp. 193-302). McGraw notes that most infants appear to creep either on hands and feet, or on one knee and one foot, with both palms on the surface. She does not, however, stress the sequential importance of these types of behavior in relation to each other and in relation to simple creeping (30, p. 69).

2. EXPERIMENTAL PROCEDURE

A. Subjects

This study is primarily based on five cases, all of which were studied over a period of at least one year and photographed at regular intervals. Supplementary cases were obtained from various sources.

Four of the original cases were babies observed and photographed at the Yale Clinic of Child Development, at four-week intervals throughout their first year of life (18, pp. 541 ff.). Motion picture records, varying in length from several hundred to several thousand feet are available for each child at each age level studied. Supplementary stenographic records describing all behavior occurring during the one day each month spent by each child at the Clinic are also available. The fifth case was observed in her home, daily, from birth through the first two years of life, and was photographed at two-week intervals. Over two thousand feet of film, together with daily records of behavior, are available for this fifth case.

Supplementary cases consist of four babies photographed at the Yale Clinic of Child Development at monthly intervals during their first year of life; three children from 28 through 64 weeks of age, observed in their homes at bi-weekly intervals; and eight children seen at bi-weekly intervals at the Connecticut State Farm for Women.

B. Methods of Obtaining Data

Motion picture records of four of the cases were taken with two professional cameras, one a DeBrie and one a Pathe, on 35 mm. panchromatic film, one camera being used for horizontal records; the other, simultaneously, for zenith records. Occasionally a DeVry camera was used instead of one of the others.

Babies were always photographed under carefully controlled conditions, which were kept standard from child to child and from one observation to another. Subjects were always placed, nude, on a gray floor pad which was marked with concentric circles, one foot apart, and straight lines at right angles. The following floor situations were used, in a standard order: 1. Prone spontaneous activity; 2. Prone with a lure immobile and silent. The lure (a ball) was placed directly in front of the infant, two feet away from the center

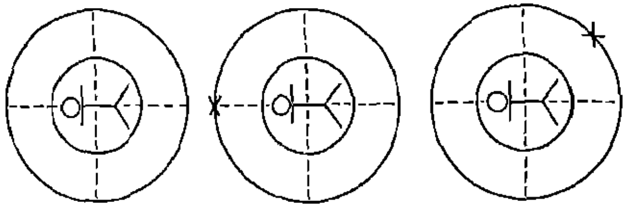


FIGURE 1

Situation 1 Situations 2, 3a, 4 Situation 3b

of his body; 3. Prone with the lure (a rattle) moving. (*a*) This was first placed in front of the child, two feet from the center of his body and then, (*b*) placed 135 degrees to the right of the child and two feet away; 4. Prone social with talking. The mother sits in front of the infant, three and one-half feet from the center of his body, talking to him. Cameras were behind screens and no persons were visible to the child except in the "prone social with talking" sequence as indicated. The following diagrams indicate the position of the infant and the lure in the several situations.

Motion picture records of the fifth case were taken on a 16 mm. Bell & Howell camera. These pictures were taken in the child's home. At the earlier age levels the child was placed on a large bed while being photographed; at the later ages, on a rug or blanket on the floor. Toys or Zwieback were used as lures.

These five were the main cases used in this study. Supplementary cases were: (*a*) A group of three children visited every two weeks in their homes. These babies were observed though not photographed, as they lay on a table or on the floor. Movements, when not spontaneous, were induced by some simple lure. Written notes were made of all movements. (*b*) A group of four "normative" cases photographed monthly at the Yale Clinic of Child Development, as they were put through the standard normative examinations. These records were made on a 16 mm. Bell & Howell camera. (*c*) A group of eight babies seen at two-week intervals at the Connecticut State Farm for Women. These infants were allowed to play on the floor, lightly clad, for several hours a day, and were observed during these play periods. Written records were taken of all prone behavior in these subjects during periods of observation which varied in length from a half hour to several hours.

Since it was the natural, normal response of the child on which interest was centered, in the supplementary cases little effort was made to obtain rigid control of the situation beyond keeping the surfaces on which the children were placed consistently flat. When the child did not move about of his own accord, simple lures resembling those which are met in the home situation, were used. It was felt that the sequence of behavior items which leads, in the course of normal development, to proficient progression in the prone position, was one which would be exhibited in any but markedly abnormal conditions.

C. TREATMENT OF DATA

Analysis of cinema records, of which several hundred feet or more at each age level were available for five of the cases was carried out as follows:

First, the records were studied by simple projection. Second, they were placed on a moviola, which allows the film to be viewed directly without projection and to be run backward or forward as desired. By use of this moviola, detailed functional descriptions were made of all recorded prone behavior. *Work Sheet A,* which follows, is a sample of this analysis, which describes in detail movements of all parts of the infant's body so long as he was prone. As will be seen, brief summaries of the behavior are given in the margins of the page. Exact footages of all behavior were noted, so that it could be reviewed and re-located at any time, either for tracing or for further analysis.

This done, the films were placed on a special 35 mm. analysis desk, which throws a reflected image of the film, magnified 5.5 times, onto a ground glass screen, and allows the image to be traced. Tracings of all prone behavior, corresponding to the written descriptions, were made. *Work Sheet B,* following, shows a pictured record of the same behavior described verbally in *Work Sheet A.* The moviola and the analysis desk are both equipped with mechanical counters, which record the exact footage, making it possible to obtain the exact duration of any action, since there are 16 frames to a foot of film and 17 to a second of behavior. When word and picture descriptions had been completed for all 35 mm. cinema records, these descriptions themselves were reviewed and summarized,

Name: Boy A
Age: 48 weeks
Reel: 820

Work Sheet A

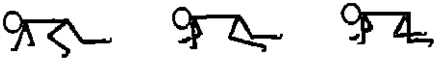
Footage	Behavior Sequence	Significance
60:10-64:3	Creeps, using opposite hands and knees. Buttocks sway decidedly to the side whose knee is advancing. Child has tipped forward from sitting to a queer creep position. Forehead is almost on the floor, hands are beside the forehead. Weight is on right knee and on top of right foot. Left foot is nearly flat on the floor, inner side pressing against the floor, outer side lifted slightly. Then body tips back again almost to sitting on right heel, while left foot tips back till weight is on heel, and toes are raised from the floor. When nearly in sitting position, baby lifts his head, and body weight tips forward till left foot is nearly flat on the floor again, though weight is still slightly more on inner than on outer side of foot.	60:10-64:3 Creeps, alternate hands and knees. Buttocks sway to side as knee advances. Odd left foot behavior.
76:3-83:6	Creeps: As left hand lifts (heel of hand first, then fingers) and is placed forward, left knee moves forward, thus lifting left heel so that weight is on toes of left foot, doubling them under. Left knee comes to the floor, weight still on bent toes. As right hand goes forward, left knee and foot lift, heel turning inward. Foot comes to the floor as right hand lowers to floor; inside of left foot is almost at right angles to leg.  Right knee lifts forward, making arms even straighter, and causing extension of left leg. Right knee comes down in forward position.	76:3-83:6 Creeps, peculiar left foot behavior. Baby uses inner side of left foot almost as if to step.

FIGURE 2

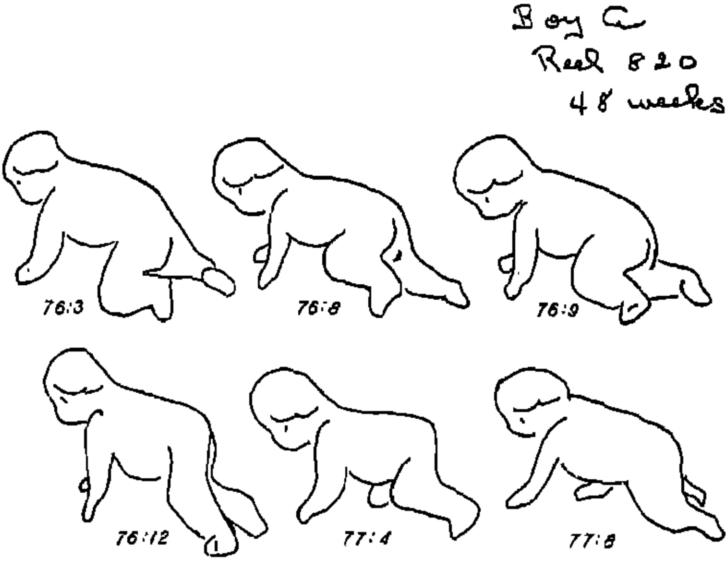


FIGURE 3
WORK SHEET B

summaries being made of all behavior observable in each infant at each age level.

All 16 mm. film records were treated in a similar manner, again all prone behavior of each infant at each age level being summarized. Similar summaries were made from the written records covering behavior of infants who were observed but not photographed.

For uniformity, since some of the records are available only at four-week intervals, all cases will be treated statistically as if seen only at four-week intervals. Thus if a behavior item was seen in a subject at 33 weeks, it will be considered as occurring at 32 weeks; if at 35 weeks, as occurring at 36. Ages used are 24, 28, 32, 36, 40, 44, 48, 52 and 56 weeks. The period 24-28 weeks is used as a starting point for two reasons: first, because a companion study dealing with pre-progression covers several of the same cases in the first half year of life; second, because movements which lead directly up to progression do not apparently occur till this time.

Classification of a behavior item at a certain age level does not mean that it occurred exclusively at that age level, nor necessarily, that it first occurred at that time. Most behavior patterns, once observed, were noted continuously for several days or weeks. Furthermore, except perhaps in the case of the one child who was observed daily, it cannot be hoped that all new behavior patterns were noted at the time of their first occurrence.

3. THE FOURTEEN STAGES OF PRONE PROGRESSION

With all the foregoing data at hand, our first task was to determine the uniformities and variations in the developmental patterning of prone behavior; to ascertain whether a uniform sequence of prone behavior patterns exhibits itself in the normal human infant; and to determine in what detail and how rigidly a typical infant may be expected to adhere to such a sequence.

Careful analysis of our material revealed strikingly similar behavior in all subjects, behavior more detailed and more elaborate than that described in previous studies. Upon detailed analysis of the data, fourteen definite developmental stages declared themselves, occurring in a consistent order in the majority of infants.

It appears, from an analysis of our data, that at least in the early stages a motion picture technique is indispensable for bringing to light a sequence such as that which we are presenting here. Preliminary observations for this study were made over a two-year period. Not until an analysis of prone behavior by means of a cinema technique was undertaken, did it become apparent that former sequential treatments of prone progression were somewhat obscuring the true detailed character of development by grouping several types of behavior patterns together and giving them an "either or" relationship. Furthermore, our very first cinema case emphasized the cephalo-caudad sweep of behavior, and suggested that the gradually increasing importance of the feet in prone progression was deserving of much more stress than had hitherto been laid on it.

The cinema showed that as early as 28 weeks there occurred interesting incipient foot patterns, seemingly of little functional importance in themselves at that time, but very important in view of later foot behavior. For it soon became apparent that creeping on one foot, one knee and both hands, and later creeping on hands and feet, were but common stages in the road to walking, not atypical forms of creeping observable in some few infants, as had been previously suggested. Not only that, but it appeared that creeping on one foot and one knee was foreshadowed in simpler creeping when one foot exhibited what may be called a "near-step," tipping into step position but not actually stepping, as the knee on that side of the body moved forward. In fact, in some cases after a first (or dominant) foot had exhibited a near step, the second (or non-dominant) foot showed a near-step pattern.

This consistently growing importance of foot behavior in creeping was considered to be one of the most important things brought out by the present study. However, cinemanalysis further revealed not only the usually described stages of prone progression, but several new stages as well. Rolling the lower body to one side while chest and shoulders remain in contact with the supporting surface, creep-crawling, and creeping in which one foot exhibits a "near step" are examples of such stages. Furthermore, several fairly common patterns such as rocking, creeping on foot and knee, and quadrupedal progression, previously treated as mild deviates from a common sequence, now appear to be true expressions of the common sequence.

For the sake of clarity, we shall digress long enough to explain the present use of the word "pattern." Gesell (20, p. 12) defines pattern as "a configured response which can be described specifically in terms of a given situation," and points out that a pattern is not a circumscribed entity in nature but that it always has a context which, if analyzed, can in turn be reduced to constituent patterns. This term will be used flexibly, sometimes to mean a pattern phase and sometimes a sequence of such phases which gives movement. Also, it will sometimes refer to some one part of the body and sometimes to the body as a whole. The context in which the term is used here should in all cases make the meaning clear.

Analysis of the present data revealed that not only individual limb movements but total patterns of behavior, involving the constellation of limbs, trunk and head as well, develop in a manner which has remarkable consistency from infant to infant. For example, use of knees in creeping invariably precedes use of either foot; use of one foot only, precedes use of both feet. Again, the arm as a whole is gradually replaced by use of forearms only, in every infant; while use of forearms precedes use of hands alone. When all of our records had been carefully analyzed and summarized it was seen that the story for each infant was basically the same.

The present sequence of fourteen patterns, then, grew almost of its own accord from a careful analysis of cinema records covering the first year of the lives of five babies. Three additional infants were observed in their homes during the second half of their first year of life to determine whether or not, in watching several normal infants as they grew, and as their patterns of prone behavior developed, we could observe the same patterns which could be observed so easily with the aid of the cinema, when the whole first year of behavior could be seen almost at once.

As these three infants developed, stage after stage of prone behavior unfolded until two of the infants had gone through all 14 of the stages, in the exact order predicted from the study of cinema cases; and the third infant, who was not available for study after his 48th week, had gone through eleven of the stages. Twelve more infants added to the group brought the total number of subjects up to 20 and gave a total of 93 per cent of the 14 sequential stages which could be observed in the whole group, in spite of restricted opportunities for observation in several cases. These 14 stages, with the mean age for their appearance in this group, are as follows:

1.	Knee and thigh forward beside body	28 weeks
2.	Knee and thigh forward, inner side of foot against the floor	28 weeks
3.	Pivoting	29 weeks
4.	Attaining inferior low creep position	30 weeks
5.	Attaining low creep position	32 weeks
6.	Crawling	34 weeks
7.	Attaining high creep position	35 weeks
8.	Retrogression	36 weeks
9.	Rocking	36 weeks
10.	Creep-crawling	36 weeks
11.	Creeping	40 weeks
12.	Creeping, near step with one foot	42 weeks
13.	Creeping, *step with one foot*	45 weeks
14.	Quadrupedal progression	49 weeks

B. Extent to Which Present Cases Conform to a Common Sequence

We shall at this point give tabular evidence of the uniformity of behavior from case to case and the extent to which each of the 14 specific stages of behavior was observed in the 20 infants studied here.

Table 1 shows that the order of appearance of these 14 items is, with rare exception (so far as present data show) remarkably consistent. In this table the stages are numbered and listed as in their

TABLE 1

Order in which the Fourteen Stages were Observed in Each Case*

Boy A	Boy B	Boy D	Boy E	Boy F	Boy G	Boy H	Boy I	Boy J	Boy K	Boy L	Girl B	Girl C	Girl D	Girl E	Girl F	Girl G	Girl H	Girl I	Girl J	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Case Number
1 24	1 22	1 28	1 24	1 32	1 32	1 18	1 28	1 28	1 28	1 32	1 28	1 22	1 18	1 24	1 32	1 21	1 20	1 28	1 21	
2 24	2 26	2 28	2 24	2 32	2 32	2 19	2 28	2 28	2 28	2 32	2 29	2 22	2 28	2 21	2 38	2 24	2 20	2 28	2 24	
3 24	3 26	3 28	3 26	3 32	3 32	3 18	3 20	3 20	3 26	3 32	3 32	3 28	3 28	3 24	3 40	3 28	3 32	3 28	3 28	
4 18	4 26	4 32	4 18	4 32	4 32	4 18	4 32	4 32	4 28	4 32	4 32	4 18	4 20	4 24	4 40	4 28	4 32	4 28	4 28	
5 32	5 38	5 20	5 28	5 48	5 36	5 18	5 32	5 32	5 32	5 35	5 31	5 28	5 36	5 21	5 44	-	5 36	5 28	5 28	
6 36	6 40	6 32	-	6 48	-	6 28	6 31	6 32	6 40	-	6 40	6 22	-	-	6 48	6 28	6 35	6 28	6 28	
7 38	7 44	7 38	7 48	7 52	7 40	7 36	7 31	7 32	7 44	7 32	7 38	7 38	7 32	7 21	7 52	7 28	7 36	7 28	7 28	
8 36	8 44	8 31	8 46	8 48	8 40	8 28	8 34	8 32	8 48	8 34	8 36	8 36	-	8 [illegible]	8 52	8 28	8 38	8 28	8 28	
9 38	9 48	9 38	9 28	-	-	9 28	9 36	9 32	9 48	9 36	9 36	9 40	9 32	9 28	9 62	9 28	9 36	9 28	9 28	
10 36	10 48	10 32	10 32	10 32	10 40	10 52	10 40	10 36	10 48	10 28	10 36	10 40	10 32	10 20	-	10 28	10 36	10 28	10 32	
11 40	11 48	11 36	11 36	11 32	11 40	11 38	11 41	11 36	11 48	11 36	11 44	11 44	11 32	11 32	11 60	11 32	11 40	11 20	11 32	
12 40	12 48	12 36	12 40	12 50	12 40	12 36	12 48	12 44	-	12 36	12 48	12 52	12 32	12 32	12 60	12 36	12 40	12 32	12 32	
13 44	13 48	13 40	13 40	13 36	13 44	13 40	13 25	13 48	-	13 40	13 52	13 52	13 41	13 40	13 60	13 36	13 40	13 32	13 32	
14 48	-	14 40	14 40	14 60	14 48	-	14 40	14 56	-	-	14 64	14 52	14 52	14 44		14 56	14 48	14 48		

* Figure in lower right hand corner of each square indicates age of child (in weeks) when stage was observed.

usual order.[5] The second figure in each square shows the age of the child (in weeks) when the particular stage first appeared. The order of appearance of the stages can be determined from the age at which each occurred.

This table shows us that, of the five cases on which entirely adequate material was available, four infants exhibited all 14 stages; the fifth infant went through 13 of the common stages. This gives the high percentage of 98.5 per cent of possible behavior patterns actually observed in these cases. Considering all 20 cases together: eight cases showed the complete sequence; seven had only one stage missing; four had but two stages missing. In only one case (that of a child not available for study after his 48th week) were more than two stages unobserved. The percentage of possible items actually observed in the entire group was 93.5 per cent, or 262 stages observed out of 280 possible stages.

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[5] This order was determined primarily from behavior of the infant who was seen daily. For the most part behavior in other cases followed this same order except when several stages were seen at one time in the later infants. This grouping of items was due to the fact that observations were usually at two-weekly or monthly intervals, while some behavior stages actually may follow each other at intervals of but a few days.

Taking into consideration the fact that records on several of the supplementary cases were extremely brief, covering in some instances but a few minutes of behavior each month, it is not surprising that several items are missing; and the fact that certain behavior patterns were not observed seems to be by no means certain evidence that they did not occur.

Table 1 shows that in 15 of our 20 subjects, what appears to be the characteristic order of sequential behavior was followed, even though an occasional stage might be missing. Again, it is quite probable that in the five cases where one stage was observed out of order, it may have appeared in the usual order without being observed, due to the often limited possibilities for observation.

C. DESCRIPTION OF THE FOURTEEN STAGES OF PRONE PROGRESSION

A description of the 14 stages of prone progression as they were observed in a very nearly standard form in all cases, follows. Illustrations of these patterns are given in the form of tracings of enlargements made from stilled individual frames of the 35 mm. film records. These photodiagrams give indication of comparative postural patternings during the several stages of development.

The stages are as follows:

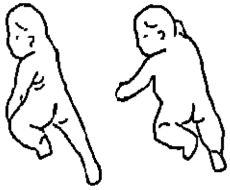

FIGURE 4
STAGE ONE

Stage one: Thrusting one knee forward beside the body.

Head: Just off floor but tilted back. Baby looks forward.

Trunk: Upper chest is barely lifted; trunk contacts floor along its length.

Arms: Flexed forward with hands at ear level. Weight on forearms, outer sides of which press against the floor as leg is thrust forward.

Legs: One knee is thrust forward beside the trunk, bringing the thigh to right angles with the body and raising the pelvis slightly. Top of the foot is against the floor. Other leg is extended, top of foot against the floor.

Comment: Arms are more important functionally than legs, at this stage. Hands have not yet entirely replaced forearms.

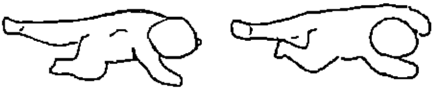

FIGURE 5
STAGE TWO

Stage two: Knee and thigh forward, inner side of foot pressed against the floor.

Head: As in Stage One.

Trunk: As in Stage One.

Arms: As in Stage One.

Legs: Legs are as in stage one except that the foot of the forward-thrust leg is turned toes outward, so that medial side of foot contacts the floor.

Comment: This is the first forerunner of the later quadrupedal position, the foot giving its first indication that it will later step.

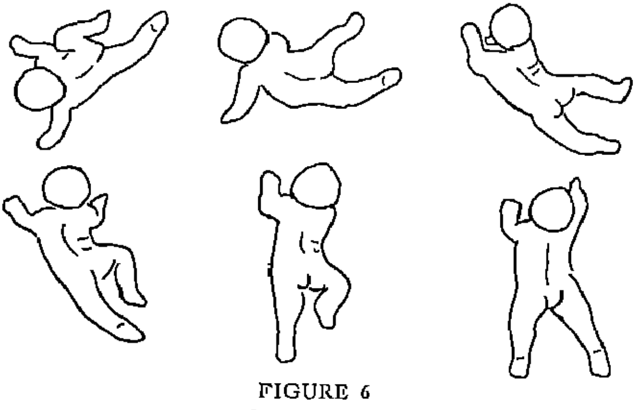

FIGURE 6
STAGE THREE

Pivoting.

in zone three, i.e. "The plane of the countenance
ndicular to the platform" (20, p. 65).
t well lifted from the floor.
ht on fanned fingers and inbent forearms.
ow in extension; now one knee flexed forward.
Baby places his right hand to the right, with
exion of right arm and extension of right leg.
and is moved to the right to the former position
nd, and at the same time the right knee is thrust
the trunk. Most of the body swing comes as the
s to the right.
his pattern makes possible some progress about
re the infant crawls.

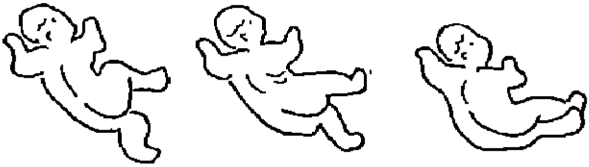

FIGURE 7
STAGE FOUR

Inferior Low Creep Position.

l in zone two,[8] i.e., just off the floor. Tips to
inst the floor.
st, left side of body, and outer side of left leg
e floor.
ght on forearms, which are flexed downward.
osition as in stage two: right knee thrust forward

Right heel rotates up and outward, bringing top
t floor. Right knee thrusts forward under body.
left knee pushes forward as arms pull down-
ls are at ear level. The body tips so that chest
t side of body contact the floor.

---

s follows (20, p. 65):
arely clears the platform.
s an inch or more above the platform.
of the countenance is almost perpendicular to the plat-

of the countenance may make an obtuse angle with the
ntal plane of the platform."

Comment: This type of activity seems to result from immaturity which prevents the legs from performing in a parallel manner such as would lead to the attainment of a creep position.

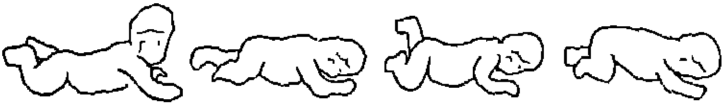

FIGURE 8
STAGE FIVE

Stage Five: Low Creep Position.

Head: Nose and forehead on the floor.

Trunk: Shoulders and upper chest against the floor. Abdomen up; lower legs and tops of toes against the floor.

Arms: Forearms flexed, pull downward, hands beside cheeks.

Legs: Knees thrust forward under body, one at a time, lifting the abdomen.

Comment: Buttocks are high, shoulders low. Child does not, at this time, hold the entire trunk up from the floor.

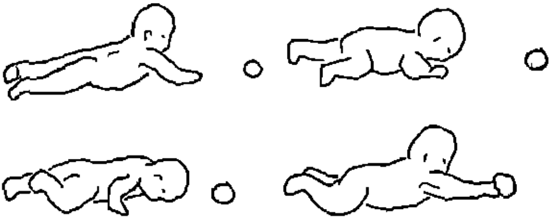

FIGURE 9
STAGE SIX

Stage Six: Crawling.

(a) *Backward.*

Head: Head in zone two, lifting to zone three.

Trunk: Head and upper chest raised; rest of body contacts supporting surface.

Arms: Weight on forearms, flexed forward at sides of head. Pushes weight backward from hands, forearms lifting.

Legs: Legs slide backward along floor as hands push.

(b) *Forward.*

Head: Head in zone three; lowers to zone two.

Trunk: Chest up at arms' length. Rest of weight on the floor. Shoulders then hunch forward.

Arms: Hands on floor at shoulder level. Forearms bend inward and weight is pulled forward over each forearm in turn.

Legs: Legs are extended backward. There is some forward knee thrust as body is pulled forward.

Comment: Crawling is accomplished almost entirely by arm movement; abdomen constantly contacts the supporting surface. Crawling is the first forward and backward mode of progression.

Stage Seven: High Creep Position.

Head: Head is in zone three.

Trunk: Chest is raised; hands, trunk and upper legs are against the floor.

Arms: Hands contact floor; arms form an angle of about 100° with the trunk.

Legs: Upper legs contact the floor; lower legs are lifted from the floor.

Movement: Each knee in turn thrusts forward under the body. Right knee lifts from floor as left pushes forward. Then right pushes forward, so that entire trunk is lifted from and parallel to the floor. Arms come to an angle of about 90° with the trunk.

Comment: The high creep position well illustrates the advanced functional development of the arms over that of the legs. At this stage hands have already replaced arms, but there is no indication of the substitution of feet for legs, which is to come later.

A position called the median creep position, intermediate between the low and high creep position, is seen in some infants. Weight rests on forearms instead of on hands. For illustrations of high creep position see stage eleven, i.e., creeping.

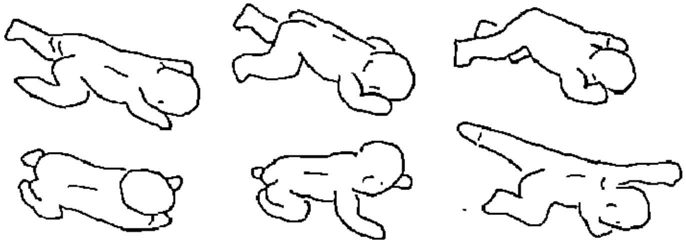

FIGURE 10
STAGE EIGHT

Stage Eight: Retrogression.

Head: Face on the floor.

Trunk: Prone, whole trunk contacts the floor.

Arms: Arms are flexed forward—weight on forearms.

Legs: Legs are extended.

Movement:

Trunk: Trunk lifts slightly as body weight pushes backward.

Arms: As knee thrusts forward, arms come to extension at angle of about 100° with the trunk. Then child pushes weight backward from his hands.

Legs: Thrusts right knee forward under trunk, then left knee forward under trunk to a high creep position. Then legs extend as weight pushes back from hands.

Comment: The fact that retrogression rather than progression occurs at this point may be due to the angle the arms make with the trunk when the child is in the high creep position at this stage of development, an angle of more than 90°. This very arm position would prevent a forward fall unless the arms were moved before this fall took place.

Stage Nine: Rocking.

Head: Head well up from floor but face parallel to floor.

Trunk: Trunk up from floor and parallel to floor. Weight on hands and lower legs.

Arms: Arms perpendicular to trunk, at an angle of now 100°, now 80° to trunk as body rocks.

Legs: Weight on knees and lower legs, which are first forward under trunk then back from trunk as body rocks.

Movement: In the high creep position, with hands and knees in a constant position, body rocks backward and forward.

Stage Ten: Creep-crawling.

Head: Head up from platform with face parallel to platform; then in zone two.

Trunk: Up from and parallel to platform; then all in contact with platform.

Arms: Hands on floor; arms perpendicular to trunk at angle of about 80°; then arms contact platform, extended forward at full length.

Legs: Knees forward under body as in high creep position; then extended against floor as in crawling.

Movement: Baby pushes up into the high creep position; falls forward to prone; then up to creep again, and so on. This movement is rhythmic and patterned, and allows considerable forward progress to be made.

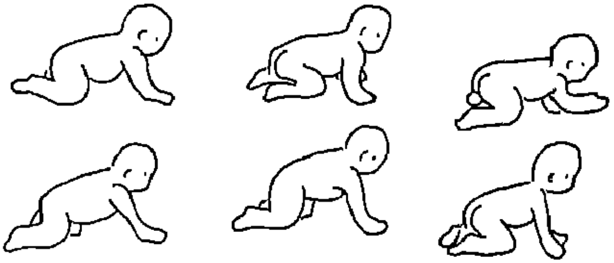

FIGURE 11
STAGE ELEVEN

Stage Eleven: Rhythmic Hands and Knees Creeping.

Head: Head in zone three or four.

Trunk: Trunk up from and parallel to platform. Weight on hands and knees.

Arms: Hands on floor; arms perpendicular to trunk.

Legs: Knees well forward under trunk. Tops of feet against platform.

Movement: Hands and knees move forward with alternate rhythmic cross-coordination. That is, right hand lifts forward, left knee lifting with momentary backward extension of left leg. Then left knee moves forward. There is a slight pause, then left hand and right knee move forward. Buttocks sway slightly to the side whose knee is moving forward.

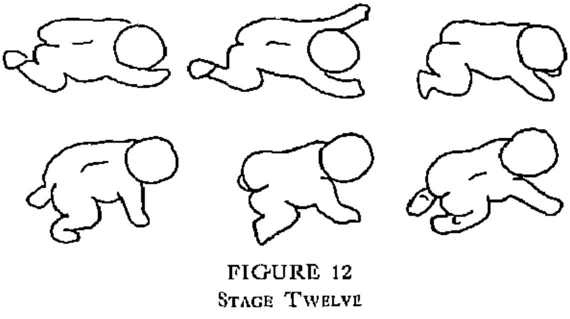

FIGURE 12
STAGE TWELVE

Stage Twelve: Creeping in which One Foot Exhibits a Near-Step Pattern.

Head: Head is as in stage eleven.

Trunk: As in stage eleven.

Arms: As in stage eleven.

Legs: As in stage eleven except that one foot moves forward with a "near-step" pattern. That is, as the knee lifts, the heel rotates in and downward, and the foot moves forward in a step position, having the sole of the foot nearly parallel to the floor. As the knee comes to the floor, the toe-tips contact the floor, and then the heel rotates up and outward till the top of the foot contacts the floor.

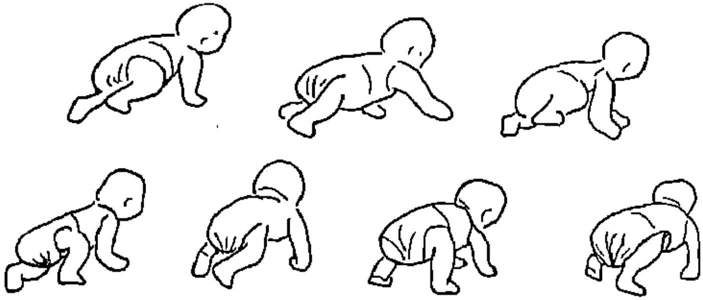

FIGURE 13
STAGES THIRTEEN AND FOURTEEN

Stage Thirteen: Creeping on Hands, One Knee and One Foot.

Head: Head is in stages eleven and twelve.

Trunk: As in stages eleven and twelve.

Arms: As in stages eleven and twelve.

Legs: As in stage eleven except that one knee is entirely replaced functionally by a foot which always steps forward when its turn comes.

Movement: Movement is as in stage eleven except for the replacement of one knee by the foot on that side. Thus right hand and left knee move forward, then left hand and right foot.

Stage Fourteen: Quadrupedal Progression.

Head: Head is in zone three; or sometimes face is parallel to floor.

Trunk: Trunk is well up from floor and parallel to floor.

Arms: Hands on the floor; arms straight from trunk to floor, at about an angle of 90° with trunk.

Legs: Feet are flat on surface; legs straight from trunk to floor at an angle of about 90° with trunk.

Movement: Hands and feet move in alternate rhythmic coordination just as did hands and knees in stage eleven.

Comment: The mere attainment of this position, without any

> progression on all fours, is noted in some cases. It results from a very definite pattern of behavior and is not to be confused with the momentary pause which some infants make in an all fours position on their way up to or down from standing. The baby is usually in the high creep position to begin with, and then extends his legs, lifting knees while keeping both feet on the floor, till weight is on hands and feet only. This behavior usually occurs late in the first year and is considered as stage 14 for the few infants who exhibit it and do not exhibit all fours progression. It is possible that a more elaborate study may show the attainment of this position, and actual progression thus, to be two entirely different stages common to most infants, even as are the attainment of high creep, and creeping.

These 14 stages appear to characterize developing prone progression in the normal human infant, from the time when he first moves about in the prone position till the time when he forsakes prone behavior for walking.

It should be stressed that these stages which we have described are to be considered rather as nodal patterns in a sequence of ontogenetic behavior patterning than as discrete entities or as unrelated wholes.

Although some infants may not exhibit all 14 of these stages, it nevertheless appears that any sequential description of all prone behavior commonly observed in the average infant cannot include less than these 14. That a study making use of more frequent—perhaps weekly— cinema recordings might indicate further behavior is quite possible, even though we have no data in the present study which would warrant adding further stages. The present description of behavior makes adequate provision for all prone behavior observed in our group of 20 infants.

There follows a composite pictorial summary, by means of photodiagrams, of the 14 sequential stages of prone progression, each diagram illustrating posture typical during one of the stages. (The diagram reads from left to right.)

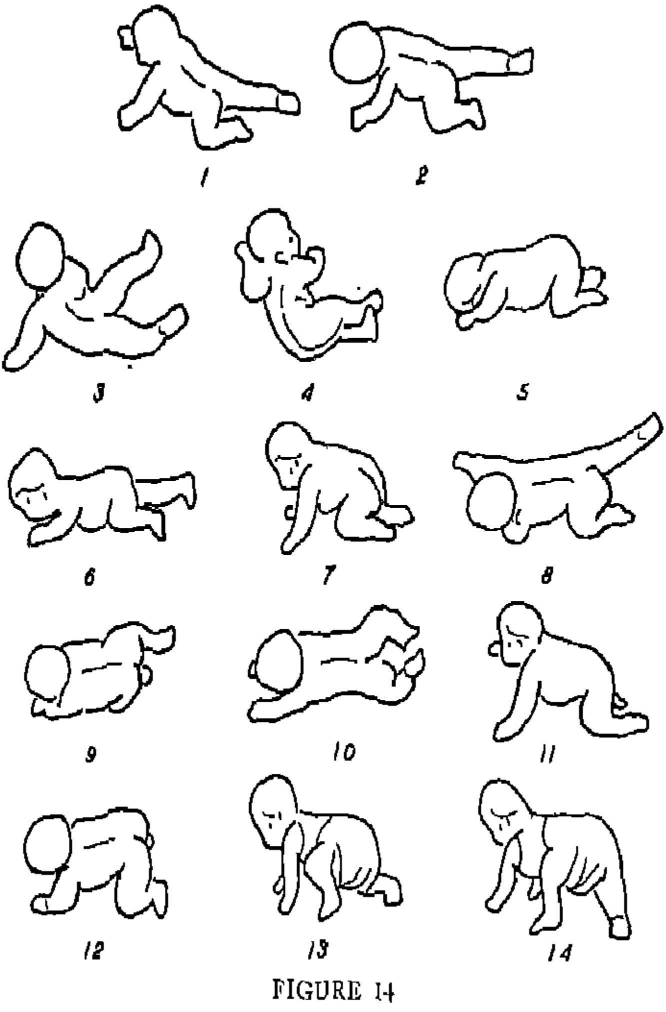

FIGURE 14
SUMMARY VIEW OF STAGES ONE TO FOURTEEN

4. INDIVIDUAL DIFFERENCES

A. CLASSES OF INDIVIDUAL DIFFERENCES

We have described in detail, in the preceding chapter, the somewhat elaborate sequence of behavior stages which appears to constitute developing prone progression in the human infant, and have established the fact that under controlled conditions 100 per cent of these stages were observed in four cases, 92 per cent in a fifth case. When the number of cases was expanded to 20 we were still able to observe 93.5 per cent of the stages. Furthermore, 70 per cent of the infants exhibited these stages in an identical—and, it would appear, standard order. In the remaining 30 per cent never more than one stage was observed out of the common order.

According to our data, developing prone behavior is practically identical from infant to infant. Yet Burnside reported the variations in prone behavior as being so great that "an exact idea of them can scarcely be given except by describing the mode of progression adopted by each particular subject" (7, p. 300). The present data suggest that such apparent differences in the way prone progression develops are the result of comparatively minor individual differences—differences which do not appreciably affect or alter the sequential course of prone progression. We have analyzed such individual differences into the following three classes.

Children appear to vary as to (*a*) ages at which individual stages in the common sequence are reached; (*b*) tempo of individual limb movements and groups of such movements as in crawling and creeping; (*c*) degree to which they elaborate individual stages of the sequence.

a. *Ages at which individual stages appear*. Although there is marked scatter all along the line, we seem to have in general two types of children. One goes quickly through the entire sequence of progression stages, creeping by 32 or 36 weeks and progressing in the quadrupedal position by 36 or 40 weeks. The other type of child does not creep till 48 or 52 weeks and does not attain the quadrupedal position or progress in that fashion till 52 weeks or much later. In the present group there is a marked tendency for infants who creep early to attain the quadrupedal position early, and for those who creep late to attain the quadrupedal position late or not at all, due to the development of and preference for the up-

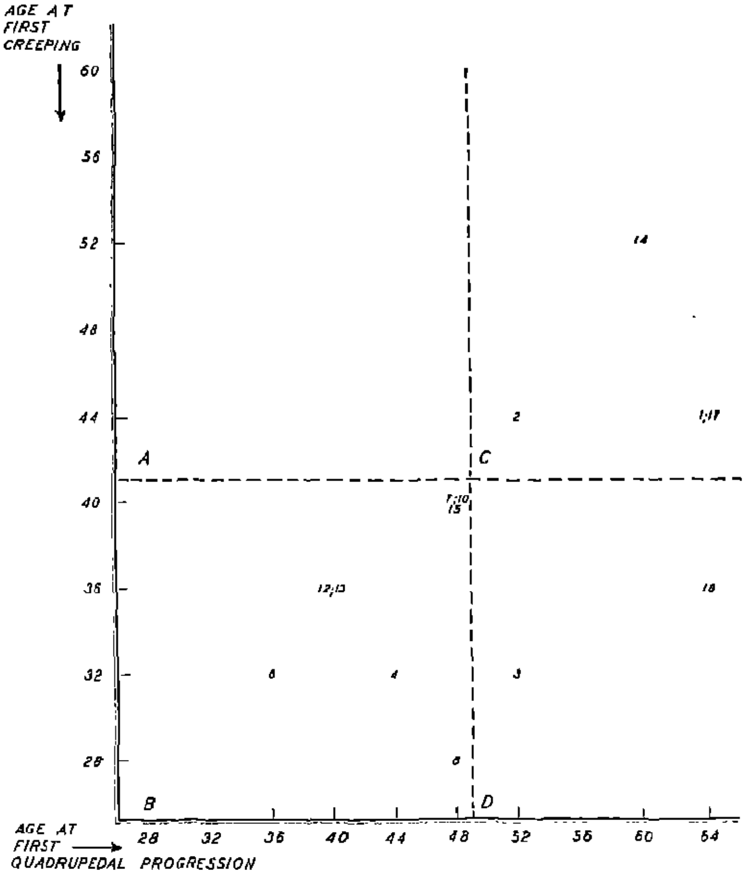

FIGURE 15

Relation of First Creeping to First Progression on All Fours

The abscissa, at 40 weeks, denotes the mean age of this group for first creeping.

The ordinate, at 48 weeks, denotes the mean age for first quadrupedal progression.

Quadrant *A* represents late creeping, early quadrupedal progression.

Quadrant *B*, early creeping, early quadrupedal progression.

Quadrant *C*, late creeping, late quadrupedal progression.

Quadrant *D*, early creeping, late quadrupedal progression.

For purposes of this chart and the next, we have indicated the children by number, Girl *A* being 1, etc. Therefore numbers refer to individual children, not to the number of cases at any given point.

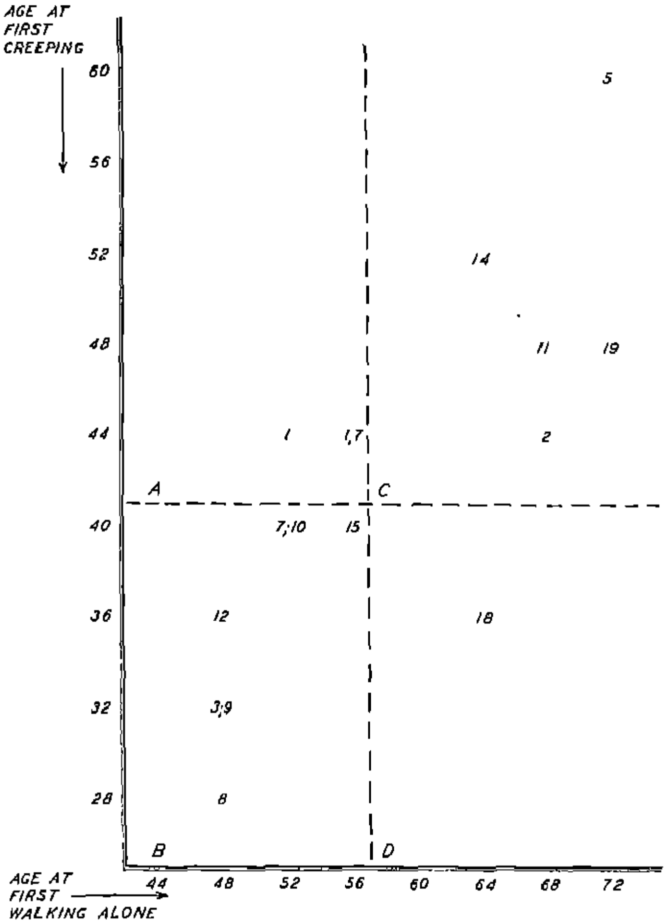

FIGURE 16

RELATION OF FIRST CREEPING TO FIRST WALKING ALONE

The abscissa, at 40 weeks, denotes the mean age of this group for first creeping.

The ordinate, at 56 weeks, the mean age for first walking alone.

Quadrant *A* represents late creeping, early walking alone.

Quadrant *B*, early creeping, early walking alone.

Quadrant *C*, late creeping, late walking alone.

Quadrant *D*, early creeping, late walking alone.

right position, which the child usually assumes after 52 weeks if not before. In all but two cases in the present group we find this positive relation between early creeping and early progression on all fours, and between late creeping and late progression on all fours.

It may be further noted that in the majority of cases infants who creep early, walk early. (Creeping and walking which first occur before the mean age of this group for such behavior are characterized as "early." Such distinctions are, of course, somewhat arbitrary; but they indicate a definite trend.) Figures 15 and 16 show the relation of time of first creeping to the time of first progression on all fours or attainment of the all fours position; and to first walking alone, respectively.

It is interesting to note that in our group of institutional babies we find a larger percentage of early creeping than in our general population. We do not know whether this early creeping is due to personality factors or to the unusual opportunity for practice of various patterns made possible in the institution. It seems quite possible that with this particular group this early creeping was not so much true general acceleration as an indication of over-accentuation of development, due to disproportionate opportunity in terms of daily routine. Unusual opportunity for practice may allow the whole sequence of prone progression to run itself off more quickly than would otherwise be the case, since one stage does seem definitely to stimulate the next. Study of Figures 17-19 shows the curves for the institution group to be practically flat, indicating marked acceleration in reaching each stage of development; while the curves for the general population are decidedly steep, indicating late arrival at the several stages.

b. Tempo of movement. There are marked differences from child to child in the tempo of movements. Such speed or slowness may be a definite constitutional trait, closely correlated with other measureable traits. A quantitative analysis of data in this present study shows that those infants who attained the various stages in progression quickly (that is, early in point of age), also crept rapidly; that those who attained each stage late, were comparatively slow creepers.

c. Degree of elaboration of individual stages. It is probable that personality and structural differences also enter here. It is possible that a closer study of a number of infants would show them all as evincing the more elaborate patterns seen here in but a few cases; but it appears from this study that some infants elaborate the several stages in the sequence much more than do others. One of the most striking examples of this is seen in the case of Girl *C* who exhibits at least three sequential types of forward crawling instead of one, as in most cases.

One particular stage in which this type of individual difference is very marked is that of quadrupedal progression (stage 14). A child who merely attains this position, or one who on occasion advances a few paces in this manner, will present a markedly different picture from a child who runs about freely on hands and feet. Yet two such children are both, we believe, exhibiting stage fourteen of the present sequence; but, in their own individual ways.

Rather frequent reference is found in the literature to certain definitely atypical forms of progression. "Hitching," is an example of such behavior. It was not observed in any of the present cases, and there is some question as to whether it belongs within, or definitely without, such a sequence as we have indicated here. A suggestion that it may be placed within the present sequence is drawn from one of our cases, a girl who, after progressing on hands, one knee and one foot with back nearly parallel to the floor (stage 13), as she grew older, raised her back till it was nearly at right angles to the floor, though she still crept with one hand, one knee and one foot. This progression in a semi-sitting position seemed to resemble hitching as it is described in the literature. If such behavior is hitching, hitching can be considered as a part of this sequence. If not, tracing the development of a "hitcher" should be of decided interest.

Thus far we have observed no deviations which cannot be accounted for either as early or late arrival at a certain common stage of development, or as complication of a certain common stage with associated activity.

B. QUANTITATIVE ANALYSIS

Quantitative analysis of some of our material on progression yields interesting data on individual differences. It is unfortunate that only four of our present cases are available in material which lends itself to such an analysis. However, such results as have been obtained have been consistent from case to case.

The method of making the quantitative analysis was extremely simple. Cinema records were studied by means of the standard moviola which made possible exact timing of such records by frames. The following timings were made for all creeping data: time in frames for each forward hand or knee or foot movement, from the instant the member started to lift from the supporting surface till it came completely to rest[7] in a forward position; time between the forward placement of the second member in any group of four (a knee or a foot) and the start of a forward move by the third member (a hand); and time consumed by any one complete pattern of creeping—a pattern here including forward placement of each of the four members.

When all material at any one age level had been analyzed in this fashion, averages were drawn as follows: average time needed for forward movement of each of the four limbs; average time of the pause between second and third limb movement; average time consumed by the total pattern. This treatment was applied to all available material on simple creeping; on creeping in which one foot moves in a near-step pattern; and on creeping which makes use of hands, one knee, and one foot. Results for one of the four cases are tabulated on the following page.

This analysis suggests that there is comparatively little variation from child to child in the time needed for forward movement of the hands, but that slow creepers move their lower limbs forward much more slowly than do infants who creep rapidly. It would further seem that it is not so much in the time of movement of any one member that slow creepers fall behind their speedier brothers, as in the time between movement of one member and that of another.

Creeping seems usually to begin with a forward hand movement. Starting often simultaneously with such a forward hand movement is forward movement of the knee on the opposite side of the body. The hand usually completes its forward movement just before the knee does so. Now comes a pause, very brief in a fast creeper; of decided length in a slow creeper. Then a second hand and knee start forward, again hand completing forward movement just before

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[7] This is easy to ascertain since the film blurs when a movement begins.

TABLE 2

Boy D[8]

	Creeping 11	*Time taken for movement*[9]		*Creeping 12*	*Time taken for movement*		*Creeping 13*	*Time for Movement*	
36 weeks	Right hand	0:05[10]	(.28)						
	Left knee	0:10	(.56)						
	Left hand	0:06	(.34)						
	Right knee	0:05	(.28)						
	Time between	0:01	(.06)						
	Total time	0:13	(.73)						
40 weeks	Right hand	0:055		Left hand	0:06	(.34)			
	Left knee	0:065		Right knee[11]	0:10	(.56)			
	Left hand	0:07		Right hand	0:06	(.34)			
	Right knee	0:065		Left knee	0:045	(.25)			
	Time between	0:016		Time between	0:006				
	Total time	1:01		Total time	1:01				
44 weeks	Right hand	0:05		Left hand	0:06		Left hand	0:065	(.36)
	Left knee	0:07		Right knee*	0:12		Right foot	0:10	(.56)
	Left hand	0:06		Right hand	0:06		Right hand	0:06	(.34)
	Right knee	0:09		Left knee	0:05		Left knee	0:06	(.34)
	Time between	0:02		Time between	0:01		Time between	0:01	(.06)
	Total time	1:00		Total time	1:03		Total time	1:02	(1.01)
48 weeks	Right hand	0:05		Left hand	0:065		Left hand	0:06	(.34)
	Left knee	0:07		Right knee*	0:015		Right foot	0:10	(.56)
	Left hand	0:06		Right hand	0:06		Right hand	0:055	(.31)
	Right knee	0:08		Left knee	0:055		Left knee	0:065	(.36)
	Time between	0:01		Time between	0:005		Time between	0:01	(.06)
	Total time	0:14		Total time	1:00		Total time	1:02	(1.01)

[8] Boy *D* is the same child referred to as Boy *D* in the *Atlas of Infant Behavior* (18). The same is true for Boys *A* and *B* and Girl *B*.

[9] Times are measured, during analysis, in number of frames, there being 16 frames to one foot of film. Frames are indicated as follows: 1:10 means one foot and ten frames, or 26 frames. Time in frames can easily be converted into time in seconds, since one frame is equal to .056 seconds. A pattern 8 frames long (0:08) would take .45 seconds. A pattern 16 frames, or one foot (1.00) long would take .9 seconds or very nearly 1 full second, since there are 16 frames to a foot but 17 to a second.

[10] These times are for complete movement of any limb.

[11] Starred limbs are dominant and show the more complex patterns.

the knee does. Sample timing for one pattern of creeping, in our fastest creeper, is given in Table 3.

TABLE 3

Child	Member	Starts	Completes movement	Duration of movement
Boy *D*	Right hand	0:00	0:05	6 frames (.34 seconds)
	Left knee	0:00	0:07	8 frames (.45 seconds)
	Left hand	*0:08*	*0:14*	*7 frames (.39 seconds)*
	Right knee	0:11	1:01	7 frames (.39 seconds)
	Total time for pattern		1:01	17 frames (1.0 seconds)
	Time between first knee and second hand		0:01	1 frame (.056 seconds)

Compared with this, let us consider sample timing for one pattern *of creeping in our slowest creepers as given in Table 4.*

TABLE 4

Child	Member	Starts	Completes movement	Duration of movement
Boy B	Right hand	0:00	0:07	8 frames (.45 seconds)
	Left knee	0:08	1:03	12 frames (.67 seconds)
	Left hand	1:07	1:13	7 frames (.39 seconds)
	Right knee	1:09	2:07	15 frames (.84 seconds)
	Total time for pattern		2:07	39 frames (2.3 seconds)
	Time between first knee and second hand		0:03	3 frames (.17 seconds)

It will be seen that time for forward hand movement is almost the same in these two children; that leg movements of the slower child are decidedly slower than those of the quicker child; and that time between limb movements is much longer for the slower child than for the quicker.

Further implications follow. Whereas increased age of an infant and use of pattern of progression may lead to elaboration of pattern and partial replacement by more complicated patterns, so far as the original simple pattern is retained it remains almost the same both in form and in timing. In simple creeping: there is with Boy *D* a slight increase in time required for the pattern, since at 48 weeks it takes about .05 seconds (1 frame) longer than at 36 weeks. With Boy *A*, the speed of behavior appears to be exactly the same at 48 weeks as at 40; and with Girl *B* there is a decrease in time of one frame (.05 seconds), as she grows older.

With regard to creeping in which one foot shows a near step, there is with Boy *D* a decrease of one frame (.05 seconds) from 40 to 48 weeks; with Boy *A*, an increase in total pattern time of five frames (.28 seconds) from 40 to 48 weeks; and with Girl *B* a decrease of one frame (.05 seconds) from 44 to 52 weeks. As to creeping with hands, one knee and one foot: in the cases of Boys *A* and *D*, the two infants who exhibited this pattern at more than one age level, the total time remains the same for each age at which the pattern is seen.

Such findings, if substantiated on a large number of cases, would seem to be strong evidence in favor of the theory that the basic patterns of progression are the result of internal maturational factors rather than the products of practice. When a new and complex pattern appears for the first time in a form so complete that several weeks, possibly several months, of exercise of that pattern do not appreciably change its form or its speed, we must conclude that it occurs because of internal mechanisms rather than as the result of practice (or of the chaining of independent reflex abilities).

C. Handedness and Footedness

One interesting individual difference which can be observed in prone progression as in any motor field is the matter of handedness and footedness. Little definitive or conclusive work has been done on the problem of whether or not handedness agrees with footedness, that is whether right-handed children are also right-footed, and vice versa. No historical account of the problem will be given here, since it is not one of primary interest in the present study.

Our present records indicate an interesting relationship between handedness and footedness. The criteria here used were as follows: as to handedness, observations were simply made as to which hand the child used to grasp and manipulate objects; particularly, at the later ages, which hand he used for drawing and for feeding himself. As to footedness, that foot was considered dominant which first showed a near-step pattern in creeping and which later was used for stepping, in that type of creeping which involves the use of one knee and one foot. This criterion agrees with the more common one which considers the dominant foot as the one with which the child kicks, or first steps up when climbing.

The dominant foot has been determined during the creeping stages, but it might as well have been determined anywhere in the sequence, since in most cases the same foot shows itself as definitely dominant in stages 1, 2, 3, 4, 6, 7, as well as 12 and 13. Particularly in the case of Girl *C* marked stressing of one foot (the right) was observed from the very earliest weeks up through the second year.[12]

Table 5 indicates for 19 of our subjects not only which hand and which foot are dominant but also, in those cases where a quantitative analysis of cinema records was possible, which hand and which foot moved forward in the shorter time. (The 20th subject did not

TABLE 5

AGREEMENT OF HAND AND FOOT DOMINANCE

Case	Dominant foot	Fastest foot	Dominant hand	Fastest hand
Boy A	Left	Right♯	Right*	Left
Boy B	Left	Right♯	Right*	Left
Girl B	Left	Right	Right*	Left*
Boy D	Right	Left♯	Right	Right
Girl D	Right		Right	
Boy H	Right		Right	
Girl F	Right		Right	
Girl C	Right		Right	
Boy J	Right		Right	
Boy L	Right		Right	
Boy F	Right		Left	
Boy G	Right		Left	
Girl H	Right		Left	
Girl J	Right		Left	
Boy E	Left		Right	
Girl G	Left		Right*	
Boy *I*	Left		Right*	
Girl E	*Left*		*Right*	
Girl I	Left		Right	

*Means that both hands (or feet) were used freely.
♯Means that dominant foot was the faster in simple creeping.

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[12] This stressing of the right foot through two years of life is illustrated in a cinema entitled "Development of a Right Leg Pattern in a Child," filmed and edited by Dr. Charles A. Dickinson of the University of Maine.

exhibit any marked preference for either foot during the period when he was available for observation.)

Some general conclusions suggested by this table are as follows: To begin with, there appears to be in all but one of our cases a definitely dominant foot. In each case but one the dominant foot moves the faster in simple creeping.[13]

Of the analyzable cases, our one definitely right-handed infant[14] moves the right hand decidedly faster. In the cases of each of the four children who, though using the right hand more than the left still use the left to an appreciable extent, the left hand moves the faster.[15] Seven of the definitely right-footed children were definitely right-handed. Four were left-handed.

The eight dominantly left-footed children were right-handed (contralateral or diagonal agreement), but in the cases of five there was a marked tendency toward the use of the left hand, even though the right was dominant. Even more interesting is the fact that in the cases of three of the left-footed children we have the left hand moving forward faster than does the right.[16]

In short, the present data suggest that in the majority of infants there is a strong tendency toward contralateral dominance; that is, for right foot and left hand, or left foot and right hand, to be dominant. Twelve out of 19 cases in the present study showed such contralaterality. However, in seven of our cases, right hand and right foot seemed to be the dominant members; and in the cases of four of our left-footed infants, though the right hand was dominant, there was a strong tendency toward use of the left hand. In no case were both left foot and left hand found to be dominant.

TABLE 6

AGREEMENT OF HAND AND FOOT DOMINANCE

	Lateral	Contralateral
Dominance	7	12
Speed	0	4

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[13] In the more complicated modes of creeping the non-dominant foot must, of necessity, move the faster since it executes the simpler pattern.

[14] The only one on which analyzable cinema records were available.

[15] The only four on which analyzable cinema records were available.

[16] No analyzable cinema records were available in the other cases of left footed infants.

Dominant hands and feet appear to move forward, as a rule, faster than do non-dominant members.

D. GRAPHS

The ages at which the present cases reached each sequential stage of prone progression have been plotted, and are presented in Figures

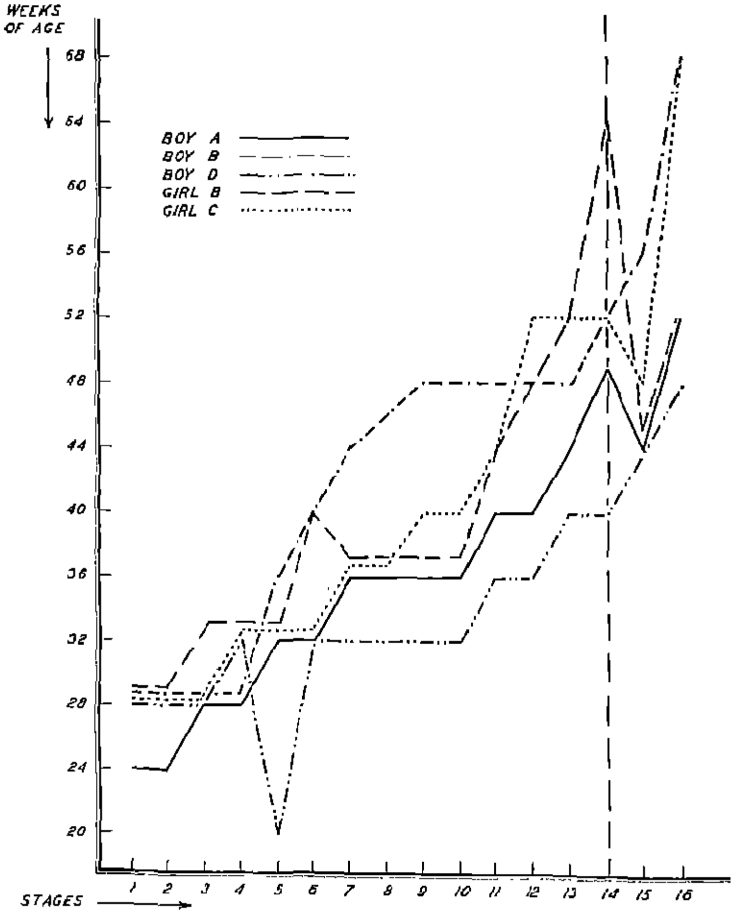

FIGURE 17

MAIN CASES

Age at first appearance of each sequential stage.

17-19. Stage numbers are given on the abscissa in each instance, and age in weeks of the child when the stage was first observed is marked on the ordinate. Cases are grouped as follows: five cinema

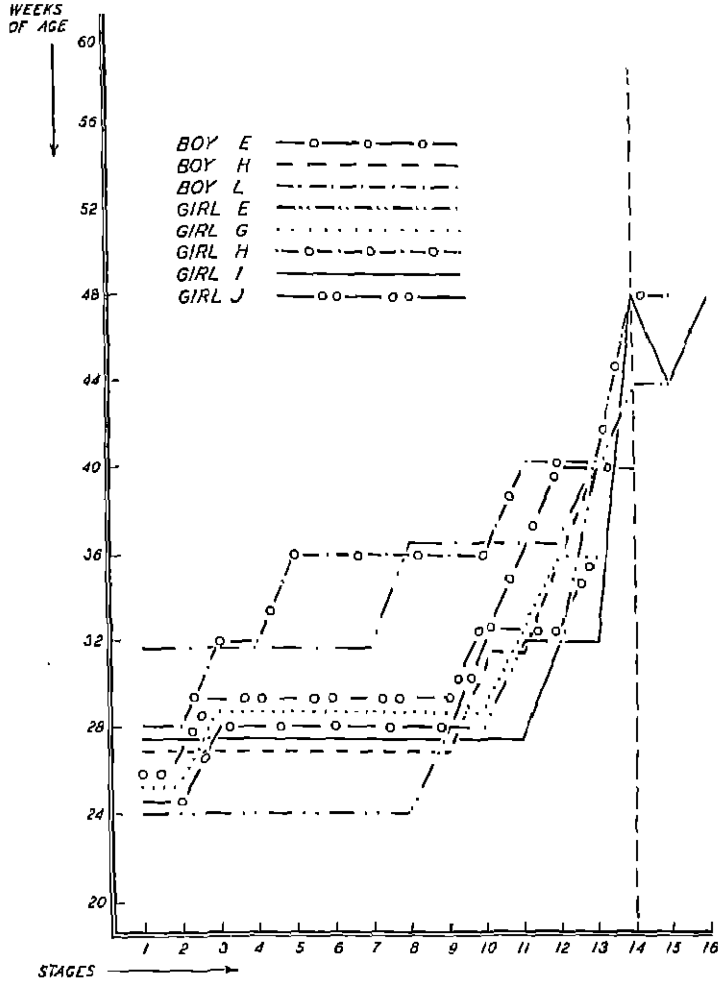

FIGURE 18

Institution Cases

Age at first appearance of each sequential stage.

cases are given in Figure 17; eight institutional cases in Figure 18; and seven supplementary cases, partly normative and partly infants seen in homes, are depicted in Figure 19. Particularly is the flatness of Figure 18 as compared with the other figures, interesting.

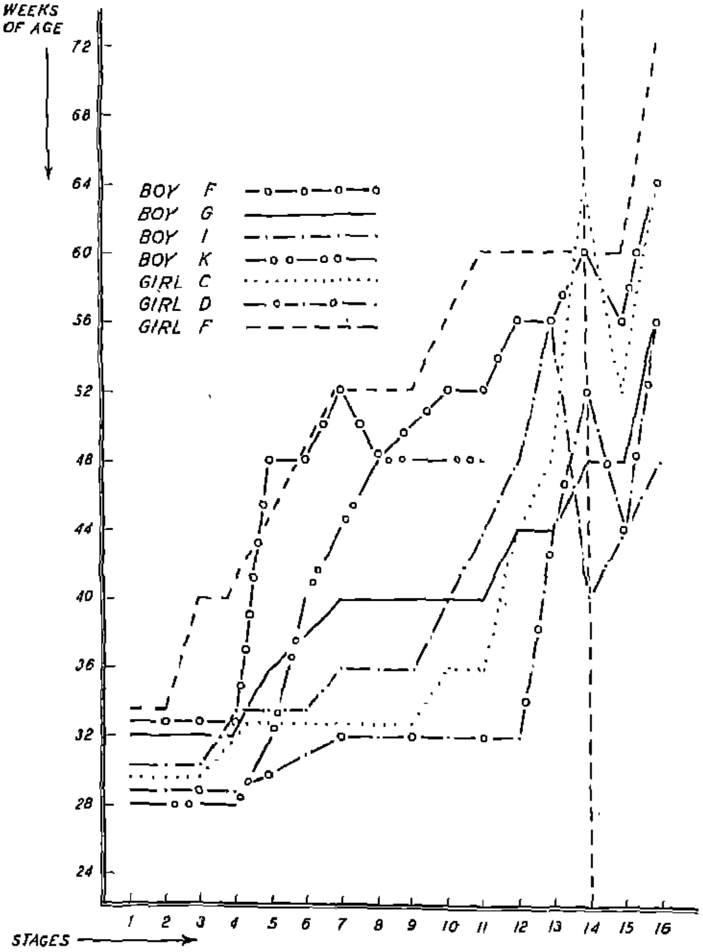

FIGURE 19
SUPPLEMENTARY CASES
Age at first appearance of each sequential stage.

It shows a decided acceleration in the institutional cases over the cases observed outside institutions. There is comparatively little crossing of lines, indicating a fairly constant rate of development in any one child; that is, a child who reaches one stage of progression early tends to reach every stage early, and vice versa. Stages 15 and 16, seen in the figures, are, respectively, walking with help and walking alone. It will be noted that walking with help usually precedes the stage of quadrupedal progression.

5. CONCLUSIONS AND COMMENTS

Two important conclusions can be drawn from the foregoing data. First, that the ontogenetic patterning of prone progression proceeds in accordance with far reaching biological laws of development, and second, that in accordance with such "laws" there is a consistent trend toward progression by means of hands and feet, and finally by feet alone.

We have already noted that actual sequences of prone behavior corresponding closely to that found in human infants have been observed in a number of mammals. When one can point out in the chimpanzee (24), the cat (33), the opossum (26), and the guinea-pig (2) not only the uniform general laws of development which apparently hold true for all animals, but the same specific sequential patterns (such as pivoting, crawling, regressing and creeping) which are seen in the human infant, and in the same order in which they occur in humans (33, p. 249) it becomes apparent that development of the human infant must be proceeding in accordance with far-reaching biological laws.

Specific examples of these "laws" and the way in which developing prone progression illustrates them, follow. Shirley has stated: "Motor control sweeps downward from the eye and head region toward the lower trunk, pelvic and sacral regions, and . . . progresses outward in the limbs from shoulder to finger-tips, and from hips to toes . . ." (33, p. 247). This brief statement embodies two important "laws": the "cephalocaudad" and the "proximo-distal" laws of development. Both of these principles are amply demonstrated by the human infant in the course of the development of prone progression.

Let us consider the first, and extremely important, principle, of cephalocaudad development as applied to development of progression in the human infant. First, in the infant, comes head control. To begin with, the head is barely lifted from the supporting surface; then, as arm control develops, the head can be lifted higher and higher. Next comes arm control. Weight first rests on the forearms; then on hands and wrists; finally, on hands alone. After arm development comes trunk development, so that it is comparatively late before the legs develop and become able to function as independent units over which the infant has full control.

Coghill has commented, of the Amblystoma, that the forelimbs acquire all their reflex activities before the hind limbs begin to move even under complete dominance of the trunk (9, p. 25). Much the same relative development is to be noted in the human infant. By 16 weeks nearly all infants have attained enough arm control to rest their weight on their forearms, when lying prone; and by 24 weeks a majority of infants can rest their weight on hands only (20, p. 64). On the other hand, it is not until a mean age of 32 weeks that the infants here studied could thrust their knees forward under the body so that weight rested on forelegs, a degree of development which might be compared with resting weight on forearms; and not until 47 weeks that the feet replaced the knees and legs, even as the hands had replaced the forearms some 23 weeks earlier.

It is presumably this earlier development of control over arms which gives them their extreme, and sometimes overlooked, importance in progression, particularly in the earlier stages. Not only do arms respond in a more advanced manner than do legs in the case of attitude only, but they also play a leading rôle in several stages of progression so far as actual progression is concerned.

In at least three of the early stages, where actual progression is concerned, movement is effected almost exclusively by the arms. In stage three (pivoting) we see the arms almost exclusively effecting movement. Again in stage six (crawling), the next instance of actual progression, we see the arms playing a major rôle. And once again in stage eight (retrogression), we see the arms as more active and more powerful than the legs.

From this point on the legs become increasingly important until in some few cases but one hand, and that rather fleetingly, is used in prone progression; progression being almost entirely a matter of forward knee and foot movements. But it will be noted that the legs do not apparently equal the arms as functional units until the child is approximately 40 weeks old. For the first 40 weeks of the child's life (that is, during about two-thirds of the time during which prone behavior can be observed) the arms are the important factors in prone progression.

The second principle indicated above, that of "proximo-distal" differentiation, is also well illustrated by the development of prone progression in the human infant. Before progression takes place, in the matter of posture alone, the forearms replace the arms, hands replace forearms, as the infant lies prone and rests his weight on his arms. The same sequence is again seen in crawling: actual use of various parts of the arm apparently necessitating a recurrence of the sequence, since in earliest crawling the whole forearm is used, to be replaced later by use of hands alone. We see the same thing again in creeping postures: weight of the upper body resting first on forearms, later on hands.

The same principle is illustrated even more strikingly in the case of the lower limbs. In crawling, and in earliest creeping, feet move simply as a part of the legs. Not till stage 12 (creeping with a "near-step") do feet begin to show signs of independent action; and not until stage 13 does a foot actually step, independently. Not till stage 14 (quadrupedal progression) does our "law" reach its ultimate solution, as the child progresses on hands and feet.

A third important principle is that development should take place from the outer side of the hand to the inner and, correspondingly, from the inner side of the foot to the outer. In crawling, the outer side of hand and forearm are used; in creeping, a later stage, the hand only, with increasing tendency to stress the radial side. Similarly, we see functional development of the foot proceeding from inner to outer side. In the earlier stages of prone progression the infant presses against the supporting surface with only the inner side of his foot. Even as late as stage 12 the inner side of the foot is stressed the more. But by the time that quadrupedal progression occurs, the foot is being used in a plantigrade position, even as in walking.

In short, prone behavior in the human infant appears to develop as does other behavior in human and infra-human alike, "through the progressive expansion of a perfectly integrated total pattern and the individuation within it of partial patterns which acquire various degrees of discreteness" (9, p. 38). It proceeds in accordance with general laws of growth and is primarily governed by intrinsic rather than extrinsic factors.

Our second important conclusion is that the trend in prone progression is constantly toward quadrupedal progression, which appears to be the logical end-result of a sequence of prone behavior patterns.

To begin with, this conclusion makes it possible for prone behavior in the infant to take its place in the general scheme of things as a genetic reinstatement of behavior in the race. It has been suggested that the infant, as he develops, recapitulates locomotor behavior as it has developed in the race. We have, as we go upward in the animal scale, those who swim, those who crawl, those who creep, and finally, those who walk upright on their hind limbs. Even so in the infant. First come non-productive swimming movements[17] then crawling, then creeping and quadrupedal progression, and finally, walking. But it is significant that among infra-humans, when the creeping stage of locomotion is reached it is always in a pattern comparable to hand and foot creeping as seen in the human infant.

In a narrower application, the conclusion that quadrupedal progression is the ultimate end-stage of prone progression, gives meaning and point to the very sequence of behavior patterns from which it is drawn. Let us review briefly prone behavior as it develops and as hands replace elbows, and feet replace knees; keeping in mind throughout that the tendency is always toward eventual quadrupedal progression.

The substitution of hands for elbows is well established by stage 7 of our sequence; the substitution of feet for knees, not till stage 14. However, the use of the feet as in stepping is foreshadowed as early as stage 2, when the baby thrusts one knee and thigh forward beside his body, with inner side of the foot pressed against the floor. This same use of the inner side of one foot against the supporting surface is often seen thereafter through stages 3, 4, 5, and 6; that is, during pivoting rolling to one side, attaining the low creep position, and crawling. Since such use of the foot is apparently without result or reason, it seems probable that it is determined by developmental mechanics rather than being the result of experience or the expression of any immediate necessity.

Use of the feet in this manner is observed only infrequently during the stages when the infant is attaining the high creep position, rocking, retrogressing and creep-crawling, but appears again shortly after the infant begins to creep on hands and knees. A true step does not appear till stage 13, but in stage 12 there occurs a pattern which we have termed a "near-step." That is, as the knee moves forward, the heel rotates in and downward, and the foot moves forward in step position; but as the knee comes to the floor, the toe-tips contact the floor and then the heel rotates up and outward till the top of the foot contacts the floor. In stage 13, the dominant foot moves forward in an actual step, the sole of this foot being at all times parallel to the floor.

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[17] This pre-locomotor behavior occurs usually around 20 weeks, preceding true locomotor behavior, and is therefore not included in the present sequence.

And finally, when the child has reached the 14th stage of prone progression, the transition from elbows and knees to hands and feet is completed. Progression is like that of any four-footed animal, as the child moves about briskly, right hand forward, then left foot; left hand forward, then right foot.

If we but grant that quadrupedal progression is the end-goal of *prone development in the human infant (even though it may not* always be attained), we find that the sequence of behavior patterns which we have observed as appearing in a nearly complete and universal form from child to child and from one environment to another, becomes a meaningful, ordered and somewhat purposeful sequence of events. It further gives a new and interesting import to the whole field of prone behavior.

So long as we are content to conclude a series of prone behavior patterns with creeping on hands and knees, prone behavior remains by itself, a somewhat isolated type of early behavior. But enlarge the sequence to include quadrupedal progression, and prone behavior shows itself in its true guise, a preparatory field for impending walking behavior. Just as in prehension the digits have to become emancipated from the hand (21, pp. 107-285), so in progression the hands have to become emancipated from the arms, the feet from the legs. We see throughout all developing prone behavior the increasing tendency toward use of hands and feet. Early behavior is but an approximation of later behavior. The tendency throughout is for the hands to free themselves from the arms and for the feet to swing inward and become plantigrade; but it is only after a long series of earlier patterns have exhibited themselves that they do so.

6. SUMMARY

1. The prone behavior of a group of 20 infants was studied by means of a photographic technique, records being made in some cases at bi-weekly and in some at monthly intervals.

2. Behavior was analyzed into the following list of behavior items which, in an apparently inflexible order, constitute the sequence of patterns which can be observed during the development of prone progression:

1. One knee and thigh forward beside the body.
2. Knee and thigh forward, inner side of foot contacting the floor.
3. Pivoting.
4. Inferior low creep position.
5. Low creep position.
6. Crawling.
7. High creep position.
8. Retrogression.
9. Rocking.
10. Creep-crawling.
11. Creeping on hands and knees.
12. Creeping, near step with one foot.
13. Creeping, step with one foot.
14. Quadrupedal progression: creeping on hands and feet.

3. A study of individual differences suggested that prone progression develops in a similar manner from child to child and that individual differences commonly observed can be analyzed into the three following classes:

(*a*) Ages at which individual stages in a common sequence are reached.
(*b*) Tempo of individual movements and groups of movements.
(c) Degree to which infants elaborate individual stages of the sequence.

4. Quantitative analysis of data indicated that the speed of any particular pattern does not decrease with practice, suggesting the potency of maturation as opposed to practice factors.

5. It was concluded that (*a*) prone development proceeds from head to foot, arm development preceding leg development. The arms exclusively effect progression during the first three stages of

actual progression, i.e., pivoting, crawling and retrogression. Legs do not play a part in progression equal to that of the arms until stage 11 of the present sequence. (*b*) The tendency is for the hands to replace the forearms and the feet to replace the knees. The trend throughout is toward progression by means of hands and feet only.

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